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THE JOURNAL

OF THE

American Medical Association

Annual Subscription, $5.00 | PUBLISHED WEEKLY | Single Copies, 15 Cents

Vol. LXVI, No. 2 | **535 North Dearborn Street, CHICAGO, ILL.** | **JANUARY 8, 1916**

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Entered as Second-Class Matter, June 25, 1885, at the Postoffice at Chicago, Illinois, under Act of March 3, 1879.
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The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. LXVI, No. 2 CHICAGO, ILLINOIS JANUARY 8, 1916

THE TREATMENT OF RESPIRATORY DISEASES IN INFANCY AND CHILDHOOD

WITH SPECIAL REFERENCE TO THE VALUE OF FRESH AIR *

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BOSTON

There seems to be a great deal of confusion in the use of the term "fresh air." Some writers apparently mean by this term pure air without regard to its temperature, others seem to mean cold air without regard to its purity, others air which is both pure and cold, and still others apparently do not attach any definite meaning to it. It is necessary, therefore, before speaking of the value of fresh air, to determine exactly what fresh air is. In common parlance the opposite of "fresh air" is "bad air" or, as is sometimes said, the air is "close." One appreciates that one is not as comfortable in a room which is shut up as in one in which the ventilation is good. One also appreciates that he is not as comfortable in a room in which there are a considerable number of people, if the ventilation is poor, as he is when he is alone in the same room. Why? What is there or is there not in the air of the "close" room which makes it uncomfortable?

It was formerly supposed that the discomfort felt in a close room was due to the presence of toxic organic constituents derived from the breath, or to an excess of carbon dioxid in the air. There is much difference of opinion as to the presence of organic matter in the expired breath. The weight of evidence seems to show that it contains very little if any. However this may be, it has been proved conclusively experimentally that the symptoms experienced in a badly ventilated room are not due to poisons excreted in the breath.[1] It has also been proved that people can breathe for many hours without discomfort air containing a very much larger proportion of carbon dioxid than is ever present in a room, provided the temperature of the air is low and that it is in motion.[2] Recent experiments seem to show, on the other hand, that the discomfort is due to a disturbance of the normal thermal relations of the body, the symptoms experienced in a close room being very similar to those felt on a hot, damp day.[3] The cause of the discomfort is apparently an interference with the normal rate of loss of body heat. Three factors are concerned in this interference: the high temperature of the air, its high moisture content, and the lack of movement in the air. It is evident, therefore, that as fresh air is the opposite of bad or close air, the essential characteristics of fresh air are not freedom from carbon dioxid or a hypothetical organic poison, but coolness, dryness and motion of the air. Therefore, fresh air may be defined as air which is cool, dry and in motion.

It is evident, therefore, that fresh air need not necessarily be pure air, if by pure air is meant air which does not contain bacteria or dust. Both of these may be present in air and yet it will be fresh.

It is self-evident that if the well feel better in fresh air than in close air, fresh air is better than close air for the sick, whether or not suffering from diseases of the respiratory tract. It is also evident that air which is free from dust is more suitable in these conditions than air which is full of dust. It is also evident that improper ventilation increases the dangers of reinfection from the patient and of infection from other patients or attendants.

Coolness is one of the essential elements of fresh air. Cool air is not, however, cold air. Does cold air have a different action from cool air, and, if so, what is the action of cold air? The action of cold air may in this connection be divided into two parts — that which it has on the respiratory mucous membrane and that which it exerts on the system as a whole.

Very little is known accurately as to the action of cold air on the respiratory mucous membrane. Clinical experience shows, however, that when the mucous membrane of the respiratory tract is acutely inflamed, as in the early stages of nasopharyngitis, laryngitis or bronchitis, cold air acts as an irritant, increasing the cough and the symptoms of heat and tightness of the chest. Clinical experience shows also that in nasopharyngitis after the acute stage is passed and the mucous membrane is swollen, cold air relieves congestion and diminishes the discomfort. Cold air cannot under ordinary conditions have any action on the mucous membrane of the respiratory tract below the trachea or largest bronchi, because it will be warmed before it reaches it.

It is well known that the application of cold to the surface of the body acts as a stimulant to the vaso-

* Read at the Sixth Annual Meeting of the American Association for the Study and Prevention of Infant Mortality, Philadelphia, Nov. 10, 1915.

1. Rosenau and Amoss: Jour. Med. Research, 1911, xxv, 35. Crowder, T. C.: On the Reinspiration of Expired Air, Arch. Int. Med., October, 1913, p. 420. Weisman: Biochemical Studies of Expired Air in Relation to Ventilation, Easton, Pa., 1913. The Toxicity of Expired Air, Current Comment, THE JOURNAL A. M. A., Jan. 24, 1914, p. 304.

2. Paul: Ztschr. f. Hyg., 1905, xlix, 405. Benedict: Bull. 175, Office of Experiment Station, U. S. Dept. Agric., p. 235.

3. Heating and Ventilation, editorial, THE JOURNAL A. M. A., Sept. 16, 1911, p. 980; The Reinspiration of Inspired Air, Nov. 20, 1913, p. 1986.

motor system. Howland and Hoobler[4] have shown that in pneumonia in children the exposure of the face of the children to cold air produces a rise in the blood pressure. They found that when the children were put out of doors in warm weather the blood pressure was not raised. They concluded, therefore, that the all important factor in raising the blood pressure was the temperature of the air (not its freshness). They state that there is "no doubt that an increase in the blood pressure, when it is abnormally low, which is constant and continuous and which is brought about without exhaustion or bad effects, is of the greatest value."

It is generally believed by clinicians that failure of the peripheral circulation is a frequent cause of death in pneumonia. This belief rests on the assumption that the blood pressure is abnormally low in persons dying of pneumonia, and on certain experiments which seem to show that the vasomotor nervous mechanism is paralyzed in fatal pneumonia. Weigert,[5] from his own experience and from the study of the literature, concluded, however, in 1911, that no rule can be established for the blood pressure in pneumonia, and consequently blood pressure readings are of no prognostic value. Newburgh and Minot,[6] in 1914, from a study of a considerable series of cases, found that the systolic pressure in the fatal cases was continuously above the systolic pressure in the persons who recovered. They conclude, therefore, that failure of the peripheral circulation cannot be a common cause of death in pneumonia. The experimental work of Porter and Newburgh[7] has also shown that the vasomotor center is not impaired in fatal pneumonia in animals. It is evident, therefore, that whatever systemic action cold air may have in pneumonia, it is not through its action on the vasomotor system.

Having considered the action of fresh air and cold air, we are now in a position to speak of the use of fresh air and cold air in the treatment of diseases of the respiratory tract. It is evident from what has been stated that the elements of freshness and coldness in the air must be considered separately. On account of the paucity of scientific data, it is necessary to rely almost entirely on the results of clinical observation. The conclusions which I have arrived at as the result of my own observations are as follows:

In the early stages of acute nasopharyngitis, cold air increases the irritation of the mucous membrane and consequently the symptoms, but in the later stages, when the mucous membrane is swollen, it relieves the discomfort to a certain extent. Cold air predisposes to affections of the ears. Fresh air is of advantage. Children with acute nasopharyngitis should, therefore, be kept in the house in cold weather, in well ventilated rooms at a temperature of about 60 F. if they are in bed, and between 65 F. and 68 F. if they are out of bed.

In acute laryngitis, cold air has a strong irritant action on the inflamed mucous membrane, and in the early stages increases the symptoms very materially. Cold air is not indicated, but does no harm in the later stages. Patients are more comfortable when the air is moist than when it is dry. Children with acute laryngitis should, therefore, be kept in well-ventilated rooms, at a temperature of about 70 F., the air being kept moist.

In the early stages of acute bronchitis, cold air increases the cough and the sense of constriction of the chest and of heat under the sternum. The cough is less troublesome when the air is moist than when it is dry. Children in the early stages of acute bronchitis should, therefore, be kept in well-ventilated rooms at a temperature of from 60 F. to 70 F. with the air moistened. During the later stages, cold air ceases to act as an irritant, but there is no apparent advantage in cold air over air which is warmed. Moisture is of no importance, because the mucous membrane of the bronchi is already moist. The temperature of the room is of less importance at this time. During the later stages of bronchitis they should, therefore, be kept in well-ventilated rooms in which the temperature of the air is moderate, but not cold.

In very acute bronchitis associated with dyspnea and cyanosis, the contraindications to the use of cold air are the same as in the milder cases. There is never any lack of oxygen in the air, therefore there is no advantage in out-of-door air. There is no more oxygen, moreover, in cold air than in warm air. The only possible advantage to be derived from cold air is, therefore, from its action as a vasomotor stimulant. It is problematical, moreover, whether this action is of value. The comparative disadvantages of cold air as an irritant to the mucous membrane and its advantages as a vasomotor stimulant must be weighed in each case.

When bronchopneumonia has developed, the most acute stage of the causative bronchitis is usually passed. There is, therefore, no contraindication to the use of cold air. There is, however, no advantage in it, unless there is vasomotor paralysis. The advantage even then is questionable. A child with severe bronchopneumonia is very likely to be weak and depressed. It may be further weakened and depressed by exposure to cold air. Children with bronchopneumonia may be chilled and injured by exposure to cold in the same way that well children may be. There is, therefore, no invariable rule as to the use of cold air in the treatment of bronchopneumonia in children. They are, however, unquestionably benefited by fresh air. As a rule, children with bronchopneumonia are probably better off in well-ventilated rooms at a temperature of between 50 and 60 F. than they are out of doors in cold weather, unless there is vasomotor paralysis. The advantages and disadvantages of cold air must, then, be weighed in each case and the decision made on the evidence on the two sides.

The bronchial mucous membrane is not involved in lobar pneumonia, therefore there is no contraindication in this disease to the use of cold air. There is no question that in this disease the general stimulant effect of cold air is of advantage. There is also no question that children with lobar pneumonia are much more comfortable in cold air than they are in warm air. Children with lobar pneumonia should, therefore, be treated out of doors or near open windows. While children with lobar pneumonia are undoubtedly more comfortable when treated with cold air, it is doubtful whether the mortality of lobar pneumonia in childhood has been lowered materially, if at all, by the cold air treatment. The statistics at present available are insufficient to show the influence of this form of treatment on the mortality. If children with lobar pneumonia are exposed to cold air, whether out of

4. Howland and Hoobler: The Effect of Cold Fresh Air on the Blood Pressure in Pneumonia of Children, Am. Jour. Dis. Child., May, 1912, p. 294.
5. Weigert: Samml. klin. Vortr., 1911, p. 459.
6. Newburgh and Minot: The Blood Pressure in Pneumonia, Arch. Int. Med., July, 1914, p. 48.
7. Porter and Newburgh: Am. Jour. Physiol., 1914, xxxv, 1.

doors or in the house, they must be dressed for it. They, in the same way as children with bronchopneumonia or even well children, may be injured by exposure to cold. It is sufficient to expose the face. The body must be warmly covered and protected.

In conclusion: Fresh air is of advantage in the treatment of all diseases of the respiratory tract. It is also of advantage to have the air pure, that is, free from bacteria, dust and smoke. Cold air is of advantage in some conditions, but harmful in others. It must be used with discretion. It is not possible to treat all diseases of the respiratory tract in the same way.

70 Bay State Road.

PROGRAM FOR THE PROMOTION OF THE PHYSICAL WELFARE OF CHILDREN AND THE PREVENTION OF TUBERCULOSIS AMONG THEM *

SHERMAN C. KINGSLEY
Director Elizabeth McCormick Memorial Fund
CHICAGO

At the meeting of the Mississippi Valley Tuberculosis Conference in St. Louis in 1914, a resolution was passed calling for the appointment of a committee which should formulate a program of activities for the promotion and safeguarding of the physical welfare of children and the prevention of tuberculosis among them.

We do not assume that all the features of such an outline will be immediately applicable to any one locality, but we believe that a program can be suggested which will give greater definiteness of purpose and unity of action, and that its various features can be gradually realized.

The states comprising this Conference territory are: Arkansas, Colorado, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Montana, Nebraska, North Dakota, Ohio, South Dakota, Tennessee, Wisconsin and Wyoming.

Before attempting to offer definite suggestions, let us first propound a few questions and state certain facts concerning the children in our Conference territory.

1. How many children are there?
2. Where do they live?
3. What tuberculosis organizations and agencies are now in the field?
4. Do these organizations reach the country child?
5. Is the country child so healthy that he needs no attention?
6. Have these agencies a program of activities which already covers the field?
7. Are there agencies in the field that can be enlisted for service, or for larger service, in promoting the physical welfare of children?

There are many other similar questions, but these seem to be, perhaps, especially pertinent.

Here are some facts about the children in our Conference territory:

NUMBER OF CHILDREN AND CHARACTER OF LOCALITIES IN WHICH THEY LIVE

The 1910 census says there were at that time in the United States 29,499,136 children under 15 years of age, and the figures we shall use relate to children under that age. Of this number 11,824,801 children lived in the states constituting the Mississippi Valley Conference territory. The Handbook of Federal Statistics of Children issued in 1913 by the National Children's Bureau gives the distribution of children in the United States by size of cities, as follows:

18.3 per cent. live in cities of 100,000 and over.
7.5 per cent. live in cities of 25,000 to 100,000.
13.5 per cent. live in towns and cities of from 2,500 to 25,000.
60.7 per cent. live in towns of less than 2,500 and in the country.

The Bureau of the Census classifies those living in communities of 2,500 or more as urban and those living in communities of less than 2,500 and in the country as rural.

Here, then, are the facts about our Conference territory: In 1910, 4,065,188 children under 15 years of age lived under urban conditions and 7,799,613 under rural conditions. In other words, 34.24 per cent. were in towns of 2,500 or more, and 65.76 per cent. in communities of less than 2,500 and in the country, almost two to one. In only two states of our Conference territory do the children living under urban conditions outnumber those living under rural conditions. These two states are Ohio and Illinois. The total number of children under 15 years of age in these two states was 3,009,788, and of this number 1,647,525 are urban and 1,362,263 rural, or 54.73 per cent. urban and 45.27 per cent. rural. If we deduct the children living in these two states from the total number in the Mississippi Valley Conference territory, we find that 27.36 per cent. of the remaining children are living under "Urban" conditions and 72.64 per cent. under "Rural" conditions, nearly three to one.

TABLE 1.—CHILDREN UNDER 15 YEARS OF AGE LIVING UNDER URBAN AND RURAL CONDITIONS—UNITED STATES CENSUS, 1910

	Per Cent. Urban	Per Cent. Rural
North Dakota	8.10	91.90
Arkansas	9.32	90.68
South Dakota	9.77	90.23
Tennessee	13.3	86.7
Kentucky	14.5	85.5
Idaho	16.29	83.71
Nebraska	20.63	79.37
Kansas	24.27	75.73
Iowa	24.82	75.18
Wyoming	28.78	71.22
Montana	33.77	67.23
Minnesota	32.89	67.11
Missouri	34.19	65.81
Indiana	37.2	62.8
Wisconsin	38.74	61.26
Michigan	43.37	56.63
Colorado	43.75	56.25
Ohio	55.8	44.2
Illinois	57.05	42.95

Table 1 gives the figures for each of our nineteen states.

Perhaps the figures in Table 1 will help to indicate the nature of our problem, for antituberculosis workers in each of the above states will know at once how effectively their programs reach 100 per cent. of the children.

HOW THE FIELD IS COVERED BY THE PRESENT ANTITUBERCULOSIS ORGANIZATIONS IN THE MISSISSIPPI VALLEY CONFERENCE TERRITORY

Table 2 is a tabulation of the tuberculosis organizations in the Mississippi Valley Conference territory

* Read at the Mississippi Valley Tuberculosis Conference, Indianapolis, 1915.

taken from the 1911 directory of the National Association for the Study and Prevention of Tuberculosis, and the supplement of 1913. The table does not bring the figures quite down to date, but it gives a fairly adequate idea of our present machinery.

In all but four instances each state has a state association. There are 323 local associations and 181 hospitals and sanatoriums, 75 dispensaries and 87 open air schools. As a rule the state association is located in a prominent city and a majority of the local associations are in communities of considerable size. One hundred and thirty-four of these are county associations, but there are 1,466 counties in our nineteen states. Eleven states have state sanatoriums. The dispensaries, however, are local and the majority of them are in cities of over 25,000. The open air schools, likewise, are in cities of considerable size. The total capacity of the hospitals and sanatoriums is about 8,728. There are approximately 2,175 children in the open air schools. It is well known that while most of this tuberculosis machinery is in congested centers, even in these places it is entirely inadequate. Then when we recall that between two and three children live under rural conditions to every one under urban conditions in our Conference territory, we can get some notion of the inadequacy of our present program.

TABLE 2.—TUBERCULOSIS ORGANIZATIONS IN MISSISSIPPI VALLEY CONFERENCE TERRITORY

	State Associations	Local Associations	Sanatoriums and Hospitals	Beds	Number of Dispensaries	Open Air Schools	Approximate Number of Pupils
Arkansas	1	4 (2 County)	1	74	..	..	.....
Colorado	1	1	23	1,695	2	3	75
Idaho	..	...	1	45	..	..	.....
Illinois	1	27 (7 County)	21	2,201	14	29	725
Indiana	1	83 (79 County)	12 (1 State)	457	2	3	75
Iowa	1	8	11 (1 State)	305	1	4	100
Kansas	1	1	4 (1 State)	23	1	..	.....
Kentucky	1	11 (4 County)	7	106	6	3	75
Michigan	1	51 (8 County)	17 (1 State)	303	8	9	225
Minnesota	1	34 (8 County)	11 (1 State)	518	3	5	125
Missouri	1	17 (13 County)	14 (1 State)	454	14	8	200
Montana	1	2	1 (1 State)	32	..	..	.....
Nebraska	1	3	1 (1 State)	62	1	..	.....
North Dakota	1	...	1 (1 State)	25	1	..	.....
Ohio	1	28 (10 County)	31 (1 State)	1,458	13	16	400
South Dakota	..	...	2	64	..	..	.....
Tennessee	..	3 (1 County)	11	514	2	..	.....
Wisconsin	1	50 (2 County)	12 (1 State)	392	7	7	175
Wyoming	..	...	...	.....	..	..	.....
Total	15	323 (134 County)	181 (11 State)	8,728	75	87	2,175

THE PHYSICAL WELFARE OF THE COUNTRY CHILD

There seems to be a general assumption that being born in the country gives one a clean bill of health and eliminates children from the health problem. We are at a disadvantage on this point because so little health work has been done in the country and small towns. There are practically no organizations which take cognizance of the physical welfare of country children. Public interest, however, is beginning to be aroused in regard to rural conditions and a number of local studies on the definite question of health of country children have been made.

Perhaps the most significant of these is the survey made by the Committee on Health Problems in Education of the National Council of Education and the American Medical Association. The report was prepared by Dr. Thomas D. Wood, of Columbia University, chairman of the Committee on Health Problems of the National Education Association, last year.

In Table 3, taken from official reports of districts in Massachusetts, New Jersey, Pennsylvania, Idaho and Virginia, Dr. Wood contrasts the percentages of mental and physical defects between city and rural children.

In all but two instances of the sixteen classes of defects enumerated in Table 3 the percentage of defectiveness is greater for the country child than for the city child.

Dr. Wood further says:

> No one actually knew how bad the country schoolhouse was until the National Education Association made a survey. The results have been amazing and in many instances appalling. These results pointed to the fact that we are neglecting the health of the country child to a serious degree, for wherever urban and rural statistics concerning the health of schoolchildren were contrasted, the country child was found to be anywhere from 5 to 20 per cent. more defective than the city child. . . .

In a recommendation for further study, Dr. Wood's committee states:

> As a result of our preliminary studies we have demonstrated:
>
> 1. That the rural school is, in sanitation and general fitness for its important use, relatively the worst type of building in the whole country, including in this category not only all types of building used by human beings, but also those used for live stock and all domestic animals.
>
> 2. That the rural schoolchildren are less healthy, and are handicapped by more physical defects than the children of the cities (including all the children of the slums). . . .
>
> At present, the country schoolchild at home and in school receives on the average less intelligent and effective health care than the city child. Relative to their importance, the country children receive less careful attention than all the other living things that grow on the farm.

Activities in the infant welfare field also throw light on this question. New York City, through its milk stations, through its efficient Bureau of Child Hygiene in the health department and through the cooperation of many child-caring agencies, has reduced its death rate below 100 out of each thousand. In the country as a whole it is somewhere around 145. Chicago, Cleveland, Philadelphia and other large cities, through similar activities, have lowered their baby death rates well below that for the country as a whole. Such indications, together with the studies made by Dr. Wood and other people, seem to answer the ques-

tion as to whether the physical welfare of country children needs attention. It is not urged that the city child is intrinsically more healthy than the country child. Any better showing that the city can make on the health side is doubtless due to the greater attention and care given to the city child.

Any program that comprehends the physical welfare of 100 per cent. of the children, then, must take cognizance of such facts, and it must be broad and comprehensive. Tuberculosis workers become in a sense residuary legatees or preferred creditors for all the array of diseases which lessen bodily tone and weaken resistance, for they are all likely to become contributory to tuberculosis. All such diseases and conditions must be reckoned as enemies to be combated in the general tuberculosis campaign. The work of prevention must be exalted into a real cause.

A SUGGESTED PROGRAM FOR THE GRADUAL REGULATION AND CONTROL OF TUBERCULOSIS IN CHILDREN

The work naturally divides into two divisions or classes of activity:

1. The creation and promotion of institutions and agencies for the care and relief of those who are victims of the disease, and for safeguarding their families and associates.

2. The conduct of a vigorous department of education and propaganda.

TABLE 3.—AVERAGE PERCENTAGE OF DEFECTS IN ALL THE STATISTICS TABULATED

	Percentage, City	Percentage, Rural
Heart disease	0.40	0.745
Mental defects	0.15	0.8
Lung disease	0.32	1.25
Anemia	1.5	1.65
Curvature	0.13	3.5
Breathing defects	2.1	4.2
Ear defects	1.28	4.78
Enlarged glands	13.01	8.28
Nasopharynx	7.5	15.9
Malnutrition	7.65	16.6
Nasal-septum defects	14.4	20.75
Eye defects	13.43	21.08
Adenoids	12.5	23.4
Throat defects	20.4	26.5
Tonsil defects	16.42	28.14
Teeth defects	33.58	48.8

The first step after a preliminary survey of the local conditions will be the organization of a clinic. Through its activities the society will come in vital touch with tuberculosis sufferers and all the problems involved. These contacts will afford that first hand knowledge and conviction which is the motive power of the fight, for most communities want their sufferers cared for as a first consideration and can be led farther and faster into constructive measures through experience in working out the problem.

Activities:

a. Careful medical examination of patients, and through children's clinics all children in families of tuberculous persons. Home visitation, care and supervision, with special attention to preventive work among the children.

b. Sufficient and efficient hospital provisions for advanced cases by municipalities and counties, under provision of a state law providing for such institutions.

c. Sanatoriums for incipient cases, with adequate and appropriate provisions for children. Special cottages or quarters separate and apart, with a régime suited to children's needs.

d. Open air schools. As a rule from 2 to 10 per cent. of schoolchildren have physical defects and special needs requiring such special attention as is given in open air schools. Also get fresh air for 100 per cent. of your children, by frequent opening of windows.

e. Sanatorium extension work, equipment of porches, roofs, etc., and special home relief, including cooperation with city and county relief agencies and charities of the community.

f. Medical examination of employees. Save the fathers and mothers of children by the early detection and treatment of disease. Attention to factories and working places promotes shop sanitation and wholesome working conditions. Make use of shops and factories as places for lectures to both men and women.

g. Christmas seal campaign. Back of the Red Cross Christmas seal is the best thought and the goodwill of our country for the health and welfare of all the people. Make its message in the fight against tuberculosis known to every home, every teacher and child in your community.

h. Infant welfare. Proper care and protection of babies yields maximum health results. If there is no agency in your community for this work, get it started.

Our second division of work is the Department of Education and Propaganda. That tuberculosis worker is strong and efficient who most effectually enthuses, arms and sets to work the already organized forces of his community. The following are agencies usually found in our scheme of government and in the social machinery of our different communities:

1. The public school with its teachers and officers.
2. Boards of health, state and local.
3. Boards of county commissioners.
4. City or county medical societies.
5. The country editor.
6. Granges and farmers' alliances.
7. Labor unions and fraternal orders.
8. Women's clubs.
9. Church organizations.

All of these agencies afford opportunities for the most vital cooperation. Definite study should be given to the plan of approach and to the preparation of material for the different groups.

Here are some facts about the different organizations enumerated:

a. The Public School.—There are 277,148 school buildings in the United States and 565,463 school teachers. There are 248 normal schools, with an average of 94,000 persons training to be teachers. There are many other teacher training schools. Then there are school officers: state superintendents, county superintendents and school boards. There are 250,000 country school districts in the United States, each with its three trustees. Then there are stated meetings of teachers, county institutes and school associations.

There are 20,000,000 schoolchildren in the United States. Compulsory education laws require them to spend from six to ten years at least in the presence of schoolteachers and to spend an aggregate of 2,283,000 years in school houses every twelve month. Perhaps the first and most important step is to make sure that you have medical inspection in your schools, or if a beginning has been made, strengthen and perfect the work.

The summaries of medical inspection so far carried on show that 60 per cent., or over 12,000,000, of the schoolchildren in the United States have physical defects serious enough to interfere with their school work. More detailed studies in a number of places indicate that something like 1,000,000 of these children are so physically defective as to render their school experience practically useless unless something more is done. Our program should call for medical inspection of a high order, for school nurses, for school clinics and agencies for the correction of physical defects of the children. Our aim should be to make the whole army of over a half million schoolteachers allies in promoting the physical welfare of children. Each worker should cultivate those in his own field.

Similar definitely directed efforts should be made to reach boards of education, county superintendents and other school people. Our efforts should not stop with a square deal for the debilitated child, but we should demand their fresh air and hygienic rights for the whole 100 per cent. of the schoolchildren. There is always plenty of fresh air outside of school buildings and we should help to get it on the inside by the proper use of the old household device, the window.

It is very desirable to have an open air school or some special effort of its kind connected with every normal school or teacher training school, so that teachers in the making may come to understand the whole needs of children, and that they should not be treated in segments, as half mind and half body, but to realize that the physical and mental must go through the world together and that the world is demanding 100 per cent. efficiency in both, as never before.

b. Boards of Health, State and Local.—Similar efforts should be made to study the possibilities of boards of health. The Rockefeller Foundation in its fight against hookworm endeavored, not to create new organizations, but to vitalize boards of health, state and local, thus utilizing existing machinery. There is a great lesson for tuberculosis workers in this effort.

c. Boards of County Commissioners.—In our form of government county commissioners are responsible for the poor relief and charity service of their respective counties. The possibilities of cooperation here should also be definitely studied and material presented especially for their use.

d. City and County Medical Societies.—The physician is charged with the responsibility of the health of the community. The possibilities of cooperation and mutual helpfulness should be fully realized.

e. The Country Editor.—Health writers and health departments in metropolitan journals are creating a demand for similar activities in the smaller local papers. The country editor will gladly use vital material and will open his papers for question and answer departments and special material on health subjects.

f. Granges and Farmers' Alliances.—In most of the states of our Conference territory are to be found granges and farmers' alliances, or some kindred organization. The purposes of these are both social and for promoting community welfare, and their cooperation can be enlisted by well defined efforts.

g. Labor Unions.—Besides concerning themselves with hours and wages, labor unions are interested in ventilation, housing, and general shop conditions. They offer one of the most promising fields for cooperation in the crusade against tuberculosis.

h. Women's Clubs.—All the women's clubs have taken a prominent part in the tuberculosis campaign, as well as in many other health movements, and stand ready to do even a more vital work if definite things are given them to do.

i. Church Organizations. — Tuberculosis Sunday, special sermons on health subjects, the church as a meeting place and in many other lines, is another resource in this campaign.

If we are to reach these agencies, proper attention must be given to lectures, special pamphlets, lantern slides, moving pictures and exhibit material. This whole matter should be carefully studied by the ablest people that can be gotten together and the material and the facts now known should be so tabulated and correlated that the most vital use can be made of them.

If prevention is ever to prevent, a more completed and effectual work must be done with the children. Our program must begin with them when they are babies. Infant welfare work should be made universal in this country, as it is in New Zealand, where through such efforts the death rate of babies has been reduced to fifty-one out of a thousand for the whole country.

The next great goal is to see to it that in the school period, when organized society compels the children to come in and sit from six to ten years in front of duly appointed agents, the teachers, that the needs of these children are recognized and understood. We should fight the fight in the earlier and more promising and hopeful period of childhood and not wait until the same defects and conditions which produced failure in school become again the causes of failure in after life.

We have become accustomed to caring for trouble after it has happened. We recognize the necessity of training people to become hospital superintendents, managers of institutions, wardens of jails, superintendents of charitable organizations, and we spend vast sums of money in creating institutions for taking care of chronic illness and finished dependents. We must recognize that if we are to win this fight in the childhood period it will require thought, care, money and technic. Irving Fisher has stated that the total annual economic loss from tuberculosis alone is $1,100,000,000. The total cost of running the public schools of the United States is a little over $500,000,000 annually, or less than half the other sum. We can and should work out a preventive program which will rob this older order, with its hospitals, sanatoriums, its almshouses and jails of much of its present clientage. Spend your service and your money in giving children a chance.

Standard Diets for Hospitals.—An experiment by the health department of New York City in establishing standard dietary methods in its hospital service has proved successful. A standard menu, basic dietary table and rules and regulations for the guidance of employees in kitchens and dining rooms was prepared by a committee appointed for the purpose. The new methods were introduced in January, 1915, and have given complete satisfaction both with regard to the quality of food and the economy of the proposition. A saving of $10,000 in nine months in the contagious disease hospitals alone has been effected. This amounts to a reduction of 3⅗ cents on the average per capita food cost. The saving has been accomplished by reducing the amount of high-priced food (meat) and substituting other foodstuffs equally nutritious and agreeable; by eliminating waste in the preparation of food through the use of standard menus; giving the employees the kind of food they want thus reducing plate waste.

THE EPIDEMIOLOGY OF TUBERCULOSIS

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Tuberculosis, referred to by Hippocrates as "the greatest and most dangerous disease and the one that proved fatal to the greatest number," antedates medical history. That the tubercle bacillus, like its congeners the hay, milk, butter and timothy bacilli, was originally saprophytic is extremely probable. Whether it became pathogenic when man forsook the tree tops for caves or when he began to clothe his body or cook his food, whether he acquired it from his bovine associates or they from him we have no means of knowing. It is commonly believed that wild animals and uncivilized men have always been found free from tuberculosis until infected by contact with civilization. Tuberculosis was acquired or developed possibly through a combination of many factors, some of which can only be conjectured. It is not even known with certainty whether man and the tubercle bacillus are slowly approaching a biologic adjustment such as exists, for instance, with the colon bacillus, or whether their relations are becoming more hostile. There are those who believe that an increasing tolerance of the human host for the bacillus is evident, as when the case mortality of the Jew and the Indian is compared. The comparison is not altogether fair, since it is a comparison of sagacity, of husbandry, of skill in combat rather than the weighing of racial immunity. On the whole, however, there is reason to believe that a biologic compromise is being approached rather than lost, and this view finds some support by analogy in the apparently lessening virulence of leprosy and syphilis.

The great antiquity of tuberculosis finds confirmation in the relationship of the bacillus to its host, in its adaptability, its perfect though antagonistic symbiosis. As examples of this may be mentioned:

1. Its varieties, avian, piscian, bovine and human. The question of its transmutation need not be considered here.

2. Latency. It will remain alive but dormant and harmless in the tissues of both man and animals for an indefinite period.

3. Low virulence and habit of compromising with its host. Invalids with open tuberculosis for ten years or more are not uncommon.

4. Resistance to decomposition. In earth and in water at all natural temperatures the tubercle bacillus successfully resists destruction for long periods of time, its waxy capsule protecting it from destruction in the open as it does in its host in what is probably a purely mechanical way. A saprophytic form which is morphologically and tinctorially different may exist, although evidence thereof is far from satisfactory, and for all practical purposes the saprophytic form is not at all necessary to the tubercle bacillus for its perpetuation.

THE INFLUENCE OF CLIMATE AND TOPOGRAPHY

Early ideas of the epidemiology of tuberculosis were quaintly erroneous. The belief that certain regions of the earth were free from tuberculosis because of some occult influence or peculiar circumstance has persisted even to our own day. The one time freedom from the disease of the inhabitants of the Hebrides was early noted and explanation offered that the smoke of the particular kind of peat burned there on open hearths had antiseptic properties. To the lime kiln region of England was ascribed special virtues on account of the prevailing gases found in the atmosphere. Iceland, before it became infected, was thought to possess certain qualities due to its snow and cold; the arid Southwest and other desert regions, because of dryness and sunshine; mountainous districts because of altitude, and sea air because of iodin and other salts suspended in the atmosphere. Usually an "immune zone" is merely uninfected territory, although sometimes the absence of those natural conditions conducive to density of population, predisposing trades, extreme poverty, intemperance, and unhealthful forms of amusement is sufficient to inhibit successfully the development of tuberculosis. This is true of certain parts of the arid Southwest, where in spite of contact with large numbers of cases of open tuberculosis among health seekers, heavy infection among native born whites is not apparent. It is not necessary to look beyond the social state of these people to account for their immunity; and if economic conditions arise in the Southwest similar to those found in the large industrial centers, there is no reason to believe that climatic peculiarity will afford any protection worthy of practical consideration.

It is not profitable to study further the influence of geographic location, of soil, of ground water or other topographic features so laboriously dealt with in the very extensive literature devoted to this subject in the last half century. These matters have no bearing on the epidemiology of tuberculosis except in the small degree wherein they affect the habits and wealth and general health of mankind, which matters can best be considered by themselves. It is sufficient to say that while depressing natural influences weaken physical resistance and so predispose to tuberculosis, the absence of such depressing influence in no wise gives immunity whenever other conditions favorable to infection occur.

PREVALENCE OF INFECTION

The tubercle bacillus is commonly referred to as ubiquitous, but always with the reservation that it does not multiply outside the animal body. The experiments of Rosenau and others show that it is readily killed by heat and chemical agents but its resistance in both the dried and moist states to natural agents, including light and direct sunlight, is not to be lightly regarded, though it has been frequently underestimated. The sputum from patients with open pulmonary tuberculosis is without doubt the commonest source of infection. There is reason to believe that freshly shed bacilli suspended in moist spray from a coughing consumptive are particularly virulent, and that bacilli contained in dust or in contaminated food are somewhat less dangerous. The common occurrence of the bacillus in feces and urine not only in open but also, occasionally at least, in closed cases adds a larger aspect to its ubiquity.

It is customary to speak of tuberculosis as a house disease. Flick attaches the utmost importance to that period before death when a consumptive is bedridden and helpless, and calls this the time when seed is sown which produces a harvest of new cases. Only the careless or helpless consumptive is feared. What value will ultimately be assigned to casual infection

such as occurs through the agency of street dust, flies, water and fomites can only be conjectured. Certainly there is no scientific evidence which would justify us in regarding it lightly. For the present, however, in practical work it must be to a certain extent ignored. A direct, intense, intimate and prolonged contact is believed to be necessary for infection, although (to repeat) this may be found incorrect. The tendency at present is to attribute less and less importance to indirect transmission of any disease.

MANNER OF INFECTION

It is believed that infection usually occurs either through inhalation or ingestion. There is some question whether bacilli suspended in spray or dust may by inhalation reach the finer bronchi or the alveolar spaces directly but it is generally conceded that a smaller dosage will infect by inhalation than by ingestion. This has not been scientifically proved. On the other hand, it is no longer doubted that tubercle bacilli may, especially when suspended in fatty particles, pass through the intact mucous membrane of the intestinal canal and produce disease of the lungs or other distant parts without necessarily causing abdominal tuberculosis. It is known that the lymph glands are often (perhaps always) the first seat of disease, and that these glands are organs of defense. The frequent presence of living tubercle bacilli in the lymph glands of nontuberculous cadavers and their persistence indefinitely in healed lesions, even those of the most minute character, have been demonstrated. That bacilli are distributed throughout the body, usually by the lymph channels but often by a true bacillemia, must also be accepted. All these facts have a bearing on the epidemiology of the disease. If a few bacilli may be harbored for many years in a lymph gland and finally liberated at an opportune moment to produce disease, latent infection becomes a vital question, the danger of minute dosage may be a very present one, continuous sensitization has a new significance and the maintenance of vigorous physical defense a still greater importance.

TIME OF INFECTION

The majority of all persons are infected before the age of 12, and in slum districts and other places where the sick are numerous and contact intimate, almost universal infection is accomplished much earlier. The age at which infection occurs among the better protected classes of society is not definitely known. Just what the relation of this early infection is to the disease which may appear a few years later, in the time of stress, is not certain, but there is a growing conviction that it is directly causative. Baldwin's dictum is now widely accepted: "Childhood is the time of infection, youth the time of superinfection, and that from extension of the primary disease." He, together with Bushnell, Brown, Bernard and others, believes that adults are comparatively little endangered by exposure to tuberculous infection because they are vaccinated against tuberculosis by accidental inoculation in early life. But for this protection, acquired of course at great risk to the child, it is presumed by some that adult human beings would be as susceptible to first infections as the adults of other animals are known to be. The immunity of adults is therefore no great cause for congratulation; it is attained at too great a price. About 10 per cent. of all deaths among children under 15 years of age are due to the various forms of this disease. It is known that tuberculosis increases in frequency but decreases in fatality with each year of life during childhood. There is some reason to believe that under a certain age resistance to the disease is not developed, and this independently of the influence of acquired protection from accidental vaccination. This, together with the difficulty of preventing gross infection of the exposed infant, has led to the suggestion that infants and young children should be given absolute protection by immediate removal from tuberculous environment until the rather arbitrarily fixed age of 4. That an infant or young child may quickly succumb to an overwhelming dose of tubercle bacilli is known. There is experimental evidence also to show that continued small dosage, such as might result from frequent contact with a consumptive, is even more apt to produce disease than a single large dose.

BOVINE TUBERCULOSIS

About 8 per cent. of deaths from tuberculosis in man are caused by bovine bacilli, most of the victims being children. Raw market milk of the cheaper grades in most cities frequently contains bovine tubercle bacilli. Opinion has fluctuated concerning the importance of bovine infection, from von Behring's theory that all tuberculosis is due to bovine infection acquired in infancy, to the idea that it might safely be ignored and was even desirable. It seems definitely settled that while the danger from this source has been sometimes exaggerated, it is a distinct menace and there remains only the question as to how it can best be avoided It is an amazing fact that with full knowledge of the epidemiology of tuberculosis among cattle, the disease has not been eliminated in a single state in this country. The practical difficulties have appeared too great to be overcome. The disease is so widespread among cattle, it is so often a benign infection, the cost of destroying all infected animals is so great that the policy is now forming of segregating infected animals and keeping those only slightly affected for limited but definite usefulness. They are entirely suitable for breeding purposes, calves removed from the infected herd at birth showing in after life no evidence of tuberculosis. In Germany the flesh of tuberculous cattle is marketed and readily sold, proper label being affixed and suitable instructions for thorough cooking being given. In this country there is a growing disposition to permit the sale of milk from tuberculous cows if properly pasteurized and so labeled. The ultimate eradication of the disease among cattle depends on segregation and on making the uninfected animals as resistant as possible by proper stabling, water, food, exercise and air.[1] The analogy between the problems presented by the disease in man and animals, respectively, is too clear to require comment.

PREVALENCE AND FATALITY OF THE DISEASE

Tuberculous infection, conceded as practically universal among adults, causes disease only under certain fairly well known conditions. These, in a word, are those which exhaust vitality, which drain the physical resources; they are fatigue and depletion. The ages, occupations, habits, social conditions and economic states of those chiefly affected all point to this important fact.

1. Report of the International Commission of the American Veterinary Medical Association on the Control of Bovine Tuberculosis, September, 1910.

Age.—About one third of all deaths between 20 and 40 are due to tuberculosis. The rate is also almost as high in women between 15 and 20, and wherever work or other deleterious condition is imposed on those either younger or older than the conventional age a mortality rate comparable to that experienced in mid-adult life is commonly found. There is scarcely need to point out that the period covered by these years is the age of greatest stress, the time of supreme endeavor. Between 20 and 40, ardent desires, intense ambitions, passions, both good and evil, drive the human machine relentlessly. The desire to excel, to marry well, to be admired, pride, instinct and vanity, all conspire to stimulate activity. The ambition to make money, obtain place and secure power, leads to self denial and to immoderate exertions — to depletion and fatigue. Whether a man's capital is brain or brawn, whether he has mental force or physical strength to invest, the midperiod of life finds him spending, spending lavishly, of the best he has. Whether he succeeds or fails, his expenditures, if he is ambitious, are limited only by his physical resources. With women no less than with men is this a critical period, and it will not be strange if, owing to more active participation in life's struggle, the slight difference in the mortality rate from tuberculosis which is now in the female's favor should shortly disappear. At this age, too, the fullest opportunity is found for indulgence of every passion prejudicial to general good health. Here the most abundant temptations appear to exhaust physical resources. Alcoholism and venery now take their greatest toll of life's chiefest possession. Be he then virtuous or vicious, filled with consuming ambition or merely the prey of evil passions, man finds himself between 20 and 40 more frequently than at any other time in a condition of anergy to tuberculous infection and succumbs to it more frequently than to any other disease.

Occupation.—While there are certain occupations which predispose to tuberculosis, especially pulmonary tuberculosis, it is generally true that those occupations in which a high mortality occurs are those calling for excessive effort or often by reason of poor pay, accompanied by privation. The predisposing trades which should by all means be given due place are, first, the dusty occupations, and, second, the trades to which bad air, excessive heat or noxious gases are peculiar. Stone cutters, dry grinders and workers in wood and certain textiles have long been known to be particularly susceptible to pulmonary tuberculosis, presumably as a result of mechanical injury or irritation to the lungs. Although miners are not usually included in this class, exceptions are occasionally noted; Lanza of the Public Health Service reports an excessively high mortality rate among the miners at Joplin, Mo., where peculiarly dusty rock strata are encountered.

The other trades in which deleterious influences are directly encountered are glass blowing, cigar making, printing, bookkeeping, the making of hats and caps, etc. Some of these are in reality dusty trades, and glass blowing may easily cause mechanical injury to the lungs. A large number of trades often mentioned as predisposing are simply representative of those in which employees are underpaid or overworked or which are sought by the physically unfit or by those mentally unqualified to conserve their physical resources. Of the occupations in which predisposing influences are actually found, it can be said that here are conditions most easily remedied of all that the epidemiologist will encounter. In most cases only physical conditions are to be combated, dust, heat, poor construction and insanitary practices. The conditions to be corrected are usually simple for a sanitarian. It is among those classes whose problems are entirely social and economic that the epidemiologist will sometimes despair. Large numbers of eminent men of genius have fallen victims to tuberculosis. "Nearly all hard zealots in the fields of letters, law, love, medicine and religion" were victims of consumption, according to Bonney. Just as, at the other end of the scale, unintelligent toilers are driven by their necessity, their improvidence or their fate beyond the limits of safe physical expenditures, so men of genius are spurred by high endeavor to commit identical error and meet a common fate in tuberculosis. In those professions, trades and other occupations, characterized alike by comfortable living and moderate exertions, is found the lowest mortality from tuberculosis. The death rate from tuberculosis among contractors and builders is about half that of their laborers, among planters and overseers less than half that among agricultural laborers (Warren); it is much less among merchants, brokers and bankers than among salesmen, clerks and bookkeepers; among authors and journalists than typesetters and printers. Again we are forced to the conclusion that fatigue and depletion are the real predisposing causes, except in a few occupations in which deleterious influences per se are encountered, and that the daily grind of physical or mental exertion, coupled with a low wage and hence a low or mediocre standard of living, are the most important factors in occupational predisposition.

Habits and Social Conditions.—The ascetic and the roué are both common victims of tuberculosis. Their habits, though directly opposed, possess the common property of producing fatigue and depletion. The high mortality from this disease among the nuns of certain orders may be due in very small part to heavily infected environment; but according to more recent conceptions of the epidemiology, it is largely due to the mortification of the flesh, self-imposed penalties, long fasts and exceedingly depressing conditions under which the inmates live. The members of a particularly fast social set, in which dissipation is excessive, may closely duplicate the experiences of the ascetic sisterhood. The society belle exhausted by exacting social duties, the humble sweatshop seamstress exhausted by long hours of toil, the student burning the midnight oil and exhausting his physical endowment by too persistent application to his subject, the worthless profligate wasting his patrimony and depleting through dissipation his forces of resistance, fall easy victims to tuberculosis. Chronic fatigue, whether from excessive toil or excessive amusement, disordered metabolism, whether from starvation or overindulgence, anxiety, whether due to religious fervor, business emergencies or games of chance, all are potent predisposing factors.

Race may properly be considered with habits and social condition, although we have no disposition to deny that race, in itself, has a bearing on the epidemiology of tuberculosis. Eliminating the other and more important considerations than blood, clinical experience indicates that there is some difference in the resistance which men of a few races show to the disease, that there are at least two races especially vul-

nerable and several especially resistant. It is certain, however, that habits and social conditions peculiar to these races have deeper significance than race itself. The mortality from tuberculosis among the plains Indians of New Mexico is much greater than that of the Pueblos of the same state. The former, notably the Apaches, are improvident, nomadic and indifferent to their own comfort. They lack resourcefulness in meeting emergencies inimical to health, and are bound by numerous prejudices, such as a dislike for fish, milk, eggs and certain kinds of meat. They are lazy, and their habits of personal hygiene are such that indigestion and diarrhea are frequent. They are, moreover, intemperate when occasion offers. The Pueblos, among whom the mortality from tuberculosis is less than half that among the Apaches, are thrifty farmers and householders with a desire for comfort and a full stomach. Housebroken for centuries, they are comparatively clean in their habits. They are better clothed, better housed and much better fed than their more primitive neighbors. There seems no reason to doubt that the difference in their death rates is due largely to different ideals and habits. Likewise in the habits of the negro, as regards housing, general hygiene, temperance, providence, etc., will be found many things which bulk large among the predisposing causes, and this is true of most races called susceptible. Consider the Chinese as found in America, living in squalor, hoarding at the expense of his physical upkeep, exhausting himself by excessive labor and often given over to vice. His mortality from tuberculosis is quite comparable to that of the negro; an ancient race under similar conditions suffers just as a more primitive one does. Whatever the effect of race may be, it is not profitable to study since obviously there is no remedy for its influence. In the habits peculiar to a race, frequently of far greater import than blood, are found matters amenable to change and fruitful study for the epidemiologist.

Economic State.—Rosenau calls tuberculosis a class disease. It has long been known as an associate of poverty. It is both a result and a cause of low economic state. Warren of the Public Health Service has plainly pointed out the fact that poverty and a low standard of living are responsible for the high death rate among negroes in perhaps greater degree than any other factor. Our own observations among the Indians are similar. Among the most valuable observations made are those mentioned by Knopf in Berlin, where it was found that 42 per cent. of all cases of tnberculosis occurred in families occupying only one room, and 40 per cent. in families whose means allowed but two rooms. Only 6 per cent. of the cases were found in families living in establishments consisting of four or more rooms. It is, indeed, a disease of fatigue and depletion which may be caused by many conditions, but by none more frequently than by poverty. It seems almost unnecessary to recount why poverty predisposes to tuberculosis. Poverty is associated with overwork and undernourishment, a forced acquiescence in unhygienic working conditions and a low standard of physical comfort at home. Here child labor and the employment of others physically unfit are most frequent. All times are times of stress. The poor may not pause to nurse themselves for a minor illness or to complete recovery from a serious one; the best medical skill is not always available and proper nursing seldom had. The diseases which particularly predispose to tuberculosis run riot among them owing to intimate contact of the crowded poor. The effects of alcoholism and other vices are aggravated by poverty, and with the loss of physical fitness which welcomes tuberculosis in one generation there is the heritage of exhausted physical endowment for the next. Sorrow, anxiety, fear, discouragement and discontent, physical exhaustion and physical discomfort, ignorance, vice and often inherited poor physical endowment, what better soldiers could this Captain of the Men of Death require!

Application

As has been well said, "What is most needed at the present time is not so much more research but a more general application of the results already at hand." Our knowledge of the epidemiology of tuberculosis, while not complete, is sufficient for a comprehensive campaign against it. I cannot agree with Landis and Kaufman, who say, "We know very little about its etiology." What we know should be taught the general public, which should be well grounded in the general knowledge of prevention.

By a general knowledge of prevention is meant something more than the crude and elementary knowledge necessary to avoid gross infection. It implies a deeper and more subtle insight into the principles of the conservation of bodily resources. To properly acquire such a knowledge, an intelligent people must be carefully instructed by well-trained teachers thoroughly versed in all the principles of preventive medicine and in complete harmony concerning the prevention, diagnosis and treatment of tuberculosis. Such instructions cannot be accomplished in one generation. It will take many years, but a good start has been made. Comparing the present general knowledge of tuberculosis with that of twenty years ago, there is no reason to doubt that success will ultimately crown the work. The public schools will naturally be one point of vantage for instruction. This instruction will include a comprehensive knowledge of all the principles of hygiene. The public must be taught to view with intelligent concern the common sources of tuberculous infection; to apportion properly the relative hazards encountered in ordinary daily life and to avoid the most important; to recognize the susceptible ages, the predisposing causes, the critical periods of tuberculous infection; to know the folly of inordinate efforts and the dangers of fatigue. The layman of the future must possess as commonplace information the principles of the prevention of tuberculosis held in trust now by the most expert students of the disease.

The application of our present knowledge of its epidemiology to the suppression of tuberculosis involves, first, the avoidance of gross infection; second, earlier diagnosis, and third, the prevention of predisposing causes. The first needs only some modification of principles already widely applied and the mitigation of some unnecessary precautions. The second embodies more than might at once appear to the casual reader. The third embraces a vast multitude of considerations, some of which lie at the very foundation of modern society.

The Avoidance of Gross Infection

Within recent years, frequent protest has been made against a rather common phthisiophobia, and it now seems probable that some current precautionary measures will be found unnecessary or at least unjustified. Certainly we should abandon the idea of attempting the destruction of all tubercle bacilli and the isolation

of all consumptives, measures which were actually contemplated by some. This subject, which has too long occupied the whole field, must be relegated to its proper place. Unlimited protection should be given infants up to 2 years, preferably to 4, and as much later as possible. Intensive work is necessary to accomplish this. Public funds should be freely spent, both in the collection of necessary data (registration, etc.) to make it practicable, and in providing measures for its execution. When the new idea has taken practical form, we may expect an increase in the number of public nurseries and children's preventoriums. We will witness a selection, for segregation in public sanatoriums and hospitals, of consumptives from families containing young children. Laws will be passed applying to tenements, boarding houses and other community dwellings prohibiting the housing of young children with the tuberculous, and minimum hygiene requirements for the care of infants will be fixed by statute.

It does not seem probable that vaccination against tuberculosis will ever become of great practical use. The inoculation of young children with living tubercle bacilli will always be an exceedingly serious thing, although it is possible that allied but wholly nonpathogenic bacteria may be found to sensitize. At present we should be content with absolute protection during infancy and, if possible, until the time when frequent periodic physical examinations are instituted.

Only an extremely guarded exposure should be allowed until after puberty. After that, safety will depend on other factors. I freely admit that the practice of relying on accidental vaccination through casual exposure during childhood is an extremely unsatisfactory method of securing that degree of immunity which is considered by some to result therefrom in the adult. We may one time find that adult tissue depends for its resistance to extraneous infection on other factors and that even first exposures after a certain age are not very dangerous. (This matter was briefly referred to above.) However that may be, expediency at present prevents us from hoping to protect children indefinitely from casual contact with the tubercle bacillus. Protection from the pneumococcus, the meningococcus and pus organisms offer almost analogous problems.

An attempt to segregate all consumptives is somewhat similar to an effort to destroy all rats in a plague-threatened city. The task in both cases is unending; a fresh supply of advanced consumptives and of rats constantly appears. Plague is best combated by rat proofing all buildings and food supplies, thereby making an ineradicable enemy innocuous and preventing his multiplication. It involves a certain amount of toleration. In the same way, when we have proofed society against conditions which beget tuberculosis, we may tolerate with equanimity a dwindling number of consumptives.

EARLY DIAGNOSIS AND MORE INTELLIGENT TREATMENT

With proper treatment, those with very early cases of tuberculosis usually recover; those with advanced disease seldom do so. Routine physical examination for the early detection of tuberculosis and other diseases seems almost certain to become universal. A multitude of eminent men now stand sponsor for the idea. A certain excellent organization (the Life Extension Institute) exists largely for the purpose of promoting such a policy. A good beginning has been made. It will be simple to effect it in the schools. It would not be difficult to enforce it throughout life, just as the performance of other public duties is required. The educational value of a complete physical examination (not inspection), made quarterly or at least semiannually during the entire school age, if accompanied by proper advice concerning its purpose, would have tremendous significance to the impressionable child and far reaching effects in later life.

The difficulty of making an accurate positive or negative diagnosis of tuberculosis in children is well known, but a positive diagnosis will not always be necessary. Any condition of ill health, malnutrition, anemia, chronic fatigue or fever in the presence of insanitary surroundings will call for appropriate relief. The preventorium, the open air school, the school nurse, the family physician, the arm of the law to effect more radical changes when necessary, will provide the remedy. When early diagnosis is made in adult life, necessary and intelligent provision to prevent the development of the disease as it is now clinically known must be at hand. A diagnosis should be made at least a year, often several years earlier than now common. The necessity for prolonged sanatorium treatment could then be often forestalled by a rest, a change of habits, a conservation of physical resources, by the simplest of hygienic measures. This would be intelligent treatment. The time may never come when human derelicts with advanced tuberculosis will not seek refuge in those havens of refuge now known as sanatoriums for the treatment of tuberculosis. The weak, the badly advised, the ignorant, the indifferent and the vicious will always be with us. But the time will surely come when some one will be held responsible for allowing the ordinary case of tuberculosis to progress beyond early incipiency before it is discovered.

There is no easily applied test for clinical tuberculosis. A negative physical examination is not conclusive, and a prolonged observation of the general health is often necessary. It would appear that some perfected means of measuring fatigue or determining the vital capacity will offer the best solution of the difficulty. With a proper standard of physical efficiency predetermined for each individual and adequately controlled, the time may come when the necessity for an accurate diagnosis of tuberculosis will not be considered important even in the adult. In fact, that is the case now when physiologic abnormality from indefinite causes is encountered among those of sufficient means to meet general indications.

Sickness insurance, toward which the country is said to be definitely moving, may be expected to provide opportunity for averting impending physical calamity when timely indicated. Insurance such as described by Warren and by Schereschewsky and such as has been in times past successfully operated in Germany will be an indispensable part of the new propaganda. It should be universal and compulsory among all of low economic status, and should be a provision for something more than mere hospital relief. It will be an invaluable means of safeguarding against one of the end-results of poverty, a large number of otherwise helpless individuals.

PREVENTION OF PREDISPOSING CAUSES

Other Diseases.—It is well known that when measures are taken to prevent any one disease, the death rate from some others, notably tuberculosis, is also

affected. The decline in the general death rate after typhoid eradicative measures known as the Mills-Reincke phenomenon finds some explanation in recent observations on the death rate among typhoid survivors, which was as 54 to 26.45 among normal people. Of the deaths, 39 per cent. were due, in the first three years after typhoid, to tuberculosis. There is no disease, acute or chronic, which does not lend its influence to tuberculosis. In measles and scarlet fever, allergy itself is temporarily lost, and resistance to the tubercle bacillus greatly lessened for several months. In pertussis, pneumonia and influenza, the mucous membrane of the respiratory tract is often damaged, trauma of the pulmonary tissue occurs and other grave changes may result, leaving a vulnerable body. Diabetes, carcinoma, hookworm, malaria, chronic indigestion and dysentery, like typhoid, greatly impair nutrition and create conditions most favorable for the development of tuberculosis. The further reduction of economic waste from serious sickness must also be considered.

Every influence which increases the hygienic standard of living will therefore assist in reducing tuberculosis. Vaccination, pure water supplies, sanitary privies, infants' milk stations, open air schools, multiplied public parks, dispensaries, hospitals and all laws and other measures calculated to control disease are adjuvants in the campaign against tuberculosis. The physician will support, as he has always done, every movement to regenerate mankind, but it should be well understood that to eliminate the chief predisposing cause of tuberculosis the efforts of any one body of men will be futile.

Stress.—"Fundamentally sanitation and health are economic problems." The eradication of tuberculosis is largely an economic problem. Stress is the predisposing cause paramount, and while the physician may perhaps ease the stress incident to unwise sanitary practices, and the moralist allay that due to vicious habits, the great causes of stress, before which all others dwindle into insignificance, belong to the economist and sociologist.

The present surgeon-general of the army is quoted as advocating the single tax on land as a health measure, together with other similar radical measures, which may not find general acceptance. The suggestion at least emphasizes the great importance now placed on economic conditions in controlling disease.

To eradicate tuberculosis we must combat poverty itself and the causes of poverty. Society must be partially reconstructed. A greater humanity and a truer wisdom must prevail. Our humanity and our wisdom may not be equal to the problem. Human progress is not assured, and it is by no means certain that tuberculosis will ever be completely elminated. If the poor are always to be with us, it seems probable that there will always remain, in spite of all direct methods of combat, a residual tuberculosis proportionate to the amount of physical stress which always accompanies poverty.

Infant Mortality as an Index to Civilization.—Sir Francis d'Ivernois observes that, "if the various states of Europe kept and published annually an exact account of their population, noting carefully in a second column the exact age at which the children die, this second column would show the relative merit of the government, and the comparative happiness of their subjects. A simple arithmetical statement would then perhaps be more conclusive than all the arguments that could be adduced."—Malthus, Essay on Population (1789).

THE UROCHROMOGEN REACTION AS AN AID TO PROGNOSIS

IN PULMONARY TUBERCULOSIS AND NON-TUBERCULOUS DISEASE

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The following communication presents a study of the relation of the occurrence of urochromogen reaction in the urine of tuberculous and nontuberculous patients to the stage of the disease present, and to the ultimate prognosis. The work has been carried out primarily with a view to investigating the reaction in advanced tuberculosis, and has been done in the Tuberculosis Department of the Providence City Hospital. In addition, however, the test has been adopted as a routine on all urines coming to the laboratory from the other departments of the hospital, which deal principally with cases of diphtheria, scarlet fever and measles. The number of tests carried out in studying 171 patients suffering from advanced tuberculosis was 469; in studying 650 cases of nontuberculous disease, 1,030 tests.

The test is performed as follows: To 5 c.c. of urine in a test tube, 10 c.c. of tap water are added, and mixed by being poured into another tube and back several times. The mixture is divided equally between the two tubes, and to one of them, 3 drops of a 1:1,000 solution of potassium permanganate are added. The other tube serves as a control. A positive reaction is indicated by the appearance, in the first tube, of a distinct and persisting yellow color. If the yellow is pale, or does not persist, the reaction is regarded as doubtful or suggestive.

The test for urochromogen in the urine was introduced by Moritz Weisz in 1911, after an exhaustive study of the diazo-reaction of Erhlich. He concluded that the latter reaction depends on the presence of urochromogen, the mother substance of urochrome, which is the normal coloring matter of the urine. He noted further that another substance is present at times, evidently an antecedent of urochromogen, and that this substance fails to give the diazo-reaction. This fact, in his judgment, helps to explain the fickleness of the latter test. Both urochromogen and its antecedent he then found to give a yellow color on the addition of a few drops of a weak solution of potassium permanganate. This test is therefore much the more reliable in the detection of cases in which the normal formation of urochrome has failed to take place.

Weisz believed that defective oxidation of urochromogen to urochrome was due in tuberculosis to massive doses of tuberculous toxin, or to marked decrease in resistance to such toxin. A positive test must, therefore, indicate an advanced and dangerous lesion. The grave prognostic import of a repeatedly positive diazo-reaction has been generally recognized since it was pointed out by Ehrlich more than a quarter of a century ago. Similarly, in regard to the urochromogen test, which depends on the same condition as does the diazo-reaction, Weisz believes that a positive test, persisting after the institution of treatment, denotes a hopeless prognosis, and its constant appearance means rapid progress to a fatal end. In this country, the

reaction has been investigated by Heflebower[1] and by Metzger and Watson.[2] The conclusions of these investigators in the main agree with those of Weisz. In addition to his opinion in regard to the gravity of a positive test, Heflebower states that "a constant negative result points to a case that is progressing favorably," and similarly Metzger and Watson conclude, "its [the reaction's] absence is generally, though not invariably (regardless of how sick the patient seems) of good prognostic import." Ferrannini[3] also believes that "a faint and inconstant reaction offers a favorable prognosis."

As regards nontuberculous conditions, the urochromogen reaction is apparently of no value in determining the prognosis. Bruni[4] has reported a number of tests in nontuberculous cases, and in patients with bone and joint tuberculosis. He regards the results of these tests as valueless in diagnosis and prognosis.[5]

Among the 1,030 reactions in nontuberculous cases included in this report, there were but twenty-six positive. A study of the case records of the patients whose urines showed the presence of urochromogen at any time revealed nothing remarkable as regards the severity or the course and ultimate outcome of the disease in each case. It was impossible to discover any relation between the clinical condition present and the occurrence of a positive reaction. Every case which showed a positive or doubtful test for urochromogen, and in which subsequent reactions were performed, showed a prompt disappearance of the substance from the urine, with the remission of the acute clinical symptoms. The conclusion is, therefore, justified that in cases of nontubercular disease studied the urochromogen test proved of no clinical value.

SUMMARY OF TESTS IN TUBERCULOUS CASES

1. Cases Showing One or More Positive Reactions: Of the 469 tests on 171 patients with advanced tuberculosis, ninety tests were positive. Of the 171 patients, those who showed a positive test at least once during the course of the disease were fifty-five in number.

The outcome of these fifty-five cases is given in the accompanying tabulation.

OUTCOME IN FIFTY-FIVE CASES OF TUBERCULOSIS SHOWING A POSITIVE UROCHROMOGEN REACTION

Outcome	No. of Cases
Died within 3 months	30
Died within 6 months	6
Died after more than 6 months	1
Left hospital, condition worse	5
Left hospital, condition unrecorded	2
Still alive after less than 3 months	8
Still alive after 3 to 6 months (condition worse)	1
Still alive after 10½ months (much worse)	1
Still alive after 10½ months (unchanged)	1

Thus, of patients showing at least one positive reaction, more than 50 per cent. have died within three months, and only three, as far as is known, have lived more than six months. One of these three died early in the seventh month, and another, after ten and one-half months, is rapidly failing. The third is still alive at the end of ten and a half months, and her condition has not materially changed. Since her positive test, Nov. 1, 1914, her urine has been negative to six subsequent tests. She is the only patient whose condition either has remained stationary or has improved, who has not showed a negative reaction at every examination.

2. Fatal Cases: In all, 169 tests have been carried out on the urine of fifty-eight patients who have subsequently died. Of these tests sixty-six were positive, eighty-two negative and twenty-one doubtful. In twenty-six of these patients, the urine was examined at least three times at varying intervals before death. Only four of this group showed a constantly positive, and three a constantly negative, reaction. In the rest there was noted a change from positive to negative reaction (or to doubtful) or the reverse, without any evidence of variation in the continuously unfavorable progression of the clinical course of the disease. This change in the reaction was seen to occur in some instances even from day to day. Evidently, even in the rapidly fatal cases the excretion of urochromogen is rarely continuous, and it is probable that none of the cases would fail to show an occasional reaction if the urine from each passage were tested separately. Though it is probable that every such patient excretes urochromogen at times, it is not at all rare for repeated tests to be negative, despite the evident rapid approach of a fatal issue. The obvious conclusion is that a negative reaction does not necessarily indicate that the tuberculous process has become quiescent, or that in the absence of clinical improvement, such a reaction is to be considered as a favorable sign. Notwithstanding the opinion of certain other observers to the contrary, a negative test appears to be of no value as regards prognosis.

It is interesting, however, to note that with the exception of the one woman mentioned above, every patient whose clinical condition has remained stationary, or has shown improvement, has exhibited a negative reaction at every test. On the other hand, the appearance of urochromogen in the urine of a person in whom the disease has been at a standstill or but slowly progressing has usually accompanied definite clinical evidence of renewed activity of the lesion, and has always indicated the approach of a rapid decline to a fatal issue.

CONCLUSIONS

1. The urochromogen reaction is of no value in determining the prognosis in diphtheria, scarlet fever and measles.

2. In advanced tuberculosis, a positive reaction indicates a severe and actively progressing lesion which will probably lead to death in from three to six months.

3. In advanced tuberculosis, a negative reaction is of no value.

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1. Heflebower, R. C.: Am. Jour. Med. Sc., 1912, cxliii, 221; abst., THE JOURNAL A. M. A., Feb. 24, 1912, p. 587.
2. Metzger, Jeremiah, and Watson, S. H.: An Aid to Prognosis in Pulmonary Tuberculosis, THE JOURNAL A. M. A., June 13, 1914, p. 1886.
3. Ferrannini, A.: Riforma med., 1915, xxxi, 479; abstr., THE JOURNAL A. M. A., June 12, 1915, p. 2029.
4. Bruni, A.: Gazz. d. osp., 1915, xxxvi, 401; abstr., THE JOURNAL A. M. A., May 15, 1915, p. 1693.
5. Considerable research is also reported by Balduzzi, A., and Ballero, A.: Gazz. d. osp., 1914, xxxv, No. 133; abstr., THE JOURNAL A. M. A., Jan. 23, 1915, p. 377.

Rural Health and "Patent" Medicines.—As the schools grow progressively in adjustment, successive generations will have the higher standards. But while this transformation as an outlook is encouraging, we cannot but realize the dire need of present action. Why can we not teach the farmer and his wife the danger of the use of Peruna, Swamp Root, or Madam Winslow's Soothing Syrup? Why can we not reach the rural home with the good tidings of how to escape typhoid fever, hookworm disease, or malaria? If we can, the obligation is ours.—Oscar Dowling, *American Journal of Public Health*, May, 1915.

THE SYNDROME OF TOXEMIA

AN EXPRESSION OF GENERAL NERVOUS DISCHARGE THROUGH THE SYMPATHETIC SYSTEM

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The human body under normal conditions has a perfect physiologic balance. One part or organ is in a state of perfect, balanced relationship with every other part or organ. A disarrangement of this equilibrium produces pathologic conditions and dysfunction. These derangements are indicated by symptoms and signs, which, when grouped, give us a picture of a definite disease.

The explanation of well-known symptoms is often wanting, the practitioner being compelled to learn them as a part of the syndrome belonging to a certain disease instead of being able to point out the exact force operating to produce them. An etiologic classification of symptoms leads us to a better understanding of the disease in question and facilitates diagnosis.

In analyzing the symptoms and physical signs in pulmonary tuberculosis, I found that they could all be classified etiologically in three groups: 1, those due to toxemia; 2, those due to reflex action; and, 3, those due to the tuberculous process per se, as in the table.

ETIOLOGIC CLASSIFICATION OF SYMPTOMS AND PHYSICAL SIGNS IN TUBERCULOSIS

Group 1.—Toxemia	Group 2.—Reflex Action	Group 3.—Tuberculous Involvement per se
Malaise	Hoarseness	Frequent and protracted colds
Lack of endurance	Tickling in larynx	Spitting of blood
Loss of strength	Cough	Pleurisy
Nervous instability	Circulatory disturbances	Sputum
Lack of appetite	Digestive disturbances	Temperature
Digestive disturbances	Loss of weight	
Loss of weight	Chest and shoulder pains	
Rapid pulse	Flushing of face	
Night sweats	Apparent anemia	
Temperature		
Anemia		

In this manner we classify some twenty-five or thirty symptoms which belong to tuberculosis in three groups so that each symptom in the individual group is due to a common etiologic factor. Such a classification simplifies diagnosis. It offers an explanation for the fact, which has long been observed, that symptoms are variable, in that the same ones are not always present, and when present, are not always equally prominent.

When studying these three groups of symptoms I was impressed with the fact that there is nothing distinctive of tuberculosis in that group which is due to toxemia. The same symptoms could be due, as well, to an infection of the tonsil, the prostate, the fallopian tube, a toxemia from intestinal stasis or an acute infectious disease. They are, in short, a part of the syndrome of infections in general. I was further impressed with the fact that the second group, those of reflex origin, all point to organs other than the lung, but that they belong to organs which are supplied by the vagus and sympathetic nervous systems, both of which supply the lung. *A further analysis of the group which is due to toxemia shows that these symptoms are identical in distribution and effect with a general discharge of nervous impulses through the sympathetic nervous system.*

To make this clearer it is necessary to recall that the autonomic nervous system supplies impulses to structures which are not controlled by the will. These are the organs supplied by smooth muscle such as the stomach, intestines, blood vessels, ducts of glands; and also certain organs possessing striated muscle fibers such as the heart, the beginning and terminal portions of the alimentary canal, and the generative organs.

The autonomic system is divided into three groups: 1, the cranial and bulbar, which are spoken of as the vagus system; 2, the thoracic and upper lumbar, known as the sympathetic system; and, 3, the lower lumbar and sacral, known as the sacral system.

The vagus system is the system which conserves life. It contracts the pupil, increases salivary secretion, slows the heart beat, causes an increase of gastric and intestinal juices, and furnishes motor power for the gastrointestinal tract. The sacral system controls the emptying of the lower bowel and bladder and presides over the generative functions. The sympathetic sends branches to all organs supplied by the vagus and sacral systems; and where the fibers from these different systems meet there is an antagonistic action between the sympathetic and other two systems. If the sympathetic stimulation is sufficiently strong, it overcomes the vagus and sacral tonus. If this control is only momentary or of short duration, as it is in fear and anger, as shown by Cannon,[1] the general strength of the individual is increased. He possesses for the time being a power greater than normal. On the other hand, if this sympathetic control continues, a general inhibition of function in the organs supplied by the sympathetic system takes place and the individual's powers suffer a diminution; thus, the dry mouth, lack of desire for food, stoppage of digestion and rapid heart's action, which are temporary in the presence of the major emotions, are emphasized and prolonged during toxemia and are expressed as a more or less continuous absence of appetite, coated tongue, retarded digestion, constipation, rapid heart action and tendency to perspiration.

While impulses may be carried directly from the brain and cord to the skeletal muscles, insuring immediate and selective response, and through the vagus and sacral systems through the intervention of a single ganglion, causing response limited to a certain organ, in the case of the sympathetic nervous system numerous ganglia are interposed and the response is shown in widely distributed parts. These ganglia act as modifiers or transformers of the impulse and make its distribution general, which accounts for the fact that so many organs and parts are involved in sympathetic irritation.

Whether a toxemia acts wholly, centrally, on the sympathetic nervous system is open to some question. While the expression is that of general sympathetic discharge, yet we must bear in mind that it is possible that this may be partly due to, or at least partly prolonged by, certain internal secretions which are engendered by, the same stimulation as that which produces the general sympathetic stimulation. Cannon has shown that the emotional states such as anger and fear, while being an expression of general sympathetic discharge, may be kept up by adrenin in the blood. The adrenal glands are supplied through the splanchnics; and impulses which cause a general sympathetic stimulation stimulate these glands also. A minute amount of adrenin poured into the blood stream has the effect of producing a prolongation of the condition which is brought about by direct sympathetic stimulation; thus adrenin

1. Cannon, W. B.: Bodily Changes in Pain, Hunger, Fear and Rage, Appleton, New York, 1915.

will cause a dry mouth, impaired digestion, intestinal stasis and a rapid heart. That toxemia, like the emotional states, acts by stimulating the sympathetics and by prolonging the action through the stimulation of the adrenals seems quite certain. It may also be found on further study that disturbances in other internal secretions may have a part in this general picture; but, even should this prove true, it will not alter the fact that the syndrome of toxemia is an expression of general sympathetic discharge.

SOFT EYEBALL IN DIABETIC COMA*

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Quite accidentally I tried one day the ocular tension in a case of diabetic coma, and was startled to find the eyeball of almost doughy consistency. On looking over the literature of diabetes I found that this symptom was first described by Krause[1] in 1903. He did not observe it in simple diabetes or in cases of acidosis unassociated with coma. In experiments on animals with acetone, diacetic acid and oxybutyric acid he failed to produce hypotonia of the eyeball; and he did find it in a dog rendered diabetic by pancreatectomy. Since Krause's first paper, few articles on the subject have appeared. Heine,[2] an ophthalmologist, refers to it in several publications. The observations of Lea Gite Schütz[3] are the most accurate, for they were made not with the finger but with the tonometer of Schiötz. She found that the tension varied from day to day, but that at the height of the coma it was extremely low or even nil. Few of the systematic writers speak of the symptom. Lépine[4] merely mentions it, referring to the papers of Krause and Heine. Among the many works on ophthalmology that I consulted, only the small monograph of Groenouw,[5] the book of Römer[6] and the article of Heine[7] speak of it.

Hertel[8] made a number of interesting experimental observations bearing on the symptom. He found, for example, that the electric conductivity of the soft eyeball was raised, showing that osmotic changes had taken place. By lowering the molecular concentration of the blood of animals, he succeeded in producing a hypotonia similar to that of diabetic coma in man. The degree of hypotonia could be varied by modifying the amount of substance introduced and the time consumed in its introduction. Various sodium salts, urea and sugar were the agents employed. Ehrmann[9] brought about hypotonia by injections of sodium butyrate and sodium isovalerianate, but in Hertel's opinion the hypotonia is not a specific effect of these salts as the same result can be obtained with sodium chlorid, sodium phosphate, urea and sugar. Chemical examination of the eyes showed that the substances injected had penetrated into the eyeball.

The soft eyeball in diabetic coma is not due to blood pressure changes; it is also not an agonal phenomenon, for it is not present in persons dying from other causes. Whether the ketone bodies play a part in its production is not definitely established. In acidosis without coma the symptom is not present. As, however, in acidosis with coma the acetone bodies are probably retained in large quantities, they may have a share in the production of the soft eyeball. In one of my cases of diabetic coma, in which ketone bodies were not found in the urine at any time, the soft eyeball was not present. In a recent case of diabetic coma in my care, that of a woman aged 41, with intense acidosis, the intern and I tested the tension repeatedly and found that it varied, as shown by the following records:

Oct. 26, 1915, on admission, the patient is conscious but lethargic; breath exhales a strong fruity odor. The urine contains sugar and diacetic acid in large quantities. Tension of eyeballs practically normal.

October 28, the patient is in coma. The pupils are contracted; the tension is greatly diminished in both eyeballs.

October 29, the patient is profoundly comatose. The tension of the eyeballs is somewhat greater than yesterday, but still markedly below normal.

Krause,[10] who observed it in twenty-two cases of coma, was of the opinion that the soft eyeball was a bad prognostic sign, but Schütz found that in one of her three cases recovery took place. Regardless, however, of prognostic value, the sign is important from the diagnostic standpoint. Heine[7] goes so far as to say that whenever found in a case of coma it proves the coma to be diabetic. Further observations are necessary before such a strong statement can be fully accepted.

As to the constancy of the sign in diabetic coma I cannot speak; in the last three cases of coma under my observation — the only ones in which I tested for it — I found it twice. One would hardly expect it to be present in every case, for constant symptoms are rare not only in diabetes but in all diseases.

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* Read before the Section in Medicine of the College of Physicians of Philadelphia, Nov. 22, 1915.

1. Krause: Ueber ein bisher nicht bekanntes Symptom bei Coma diabeticum, Verhandl. d. 21. Kong. f. inn. Med., Leipzig, 1904, p. 439.
2. Heine: Ueber Augenstörungen im Coma diabeticum, Versamml. d. ophth. Gesellsch., Heidelberg, 1903; Ueber Lipaemia retinalis und Hypotonia bulbi im Coma diabeticum, Klin. Monatsbl. f. Augenh., 1906, ii, 451.
3. Schütz, L. G.: Untersuchungen über den Augendruck beim Coma diabeticum, Inaug. Diss., Strassburg, 1913.
4. Lépine: Diabète Sucré, Paris, 1909, p. 578.
5. Groenouw: Augenleiden bei Diabetes mellitus, Halle, 1907.
6. Römer: Lehrbuch der Augenheilkunde, Berlin, 1910, p. 647.
7. Heine: Lehrbuch der Augenheilkunde, T. Axenfeld, 1915, p. 755.
8. Hertel: München. med. Wchnschr., 1913, p. 1191.
9. Ehrmann, quoted by Hertel (Footnote 8).
10. Krause: Deutsch. med. Wchnschr., 1907, p. 84.

A STRANGULATED EPIGASTRIC HERNIA*

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Any protrusion of tissue through a defect in the linea alba between the ensiform cartilage and the umbilicus is designated an epigastric hernia. Most of these hernias occur in the first 3 inches above the umbilicus, while those near the xyphoid are exceedingly rare. The relative frequency of epigastric hernia when compared with other types varies according to different statistics from 0.19 per cent. (Macready[1]) to 1.37 per cent. (Berger[2]). Coley[3] reports twelve cases from the Hospital for Ruptured and Crippled. These were observed in 3,383 cases of hernia (0.33 per cent.). In the last 1,000 hernia cases in which operation was performed at the Presbyterian Hospital of Chicago, there have been nine epigastric hernias, or 0.9 per cent.

Four types or varieties are usually described. The most common type is the protrusion of a small mass

* From the Surgical Clinic of Rush Medical College.

1. Macready, quoted from Keen's Surgery, 1912, iv, 90.
2. Berger, M. Paul: Traité de Chirurgie, 1892, p. 797.
3. Coley, W. B.: Keen's Surgery, 1913, vi, 588.

of subperitoneal fat without any sac. The mechanism of production of this variety has been described by Moschowitz, who shows that the subperitoneal fat is usually derived from that between the peritoneal layers of the falciform ligament of the liver. Such a hernia is always small and appears as a protrusion of fat through a short transverse slit in the linea alba, following the course of a small perforating blood vessel. The same writer states that he rarely diagnoses a true hernia with a sac prior to operation. The second type includes in addition to the subperitoneal fat a process of the peritoneum attached to it, making a true sac, but without contents. The third variety resembles the second with the addition of omentum in the sac. The fourth and least common type contains intestine as well as omentum.

Strangulation of epigastric hernias is exceptionally rare. Moschowitz[4] reports one case, and after a careful analysis of the literature, he has been able to find only ten others. Small intestine was contained in six of these eleven cases. Transverse colon was present in four. Omentum and strangulated bowel were found in four cases and omentum alone in one. It will be noted that the stomach was not present in a single case, although protrusion of this viscus into the hernial sac is often assigned as one of the causes of the distress complained of by the patient. It is much more likely that such distress is due to traction on the parietal peritoneum, or to increased pressure within the peritoneal sac.

The symptoms of epigastric hernias vary greatly. In many cases there are practically no symptoms, while in others nausea and vomiting, dragging pains in the epigastrium, and distress after meals may be severe enough totally to incapacitate the patient. The symptoms in cases of strangulation do not differ from those of any other hernia similarly strangulated.

The diagnosis is usually not very difficult. Lipomas occurring in this region can usually be demonstrated to have no connection with the abdominal cavity. Strangulation of the contents of an epigastric hernia may simulate an abscess in the anterior abdominal wall.

The following case belongs to the fourth variety of hernias of the linea alba between the ensiform and the umbilicus:

History.—A. S., man, aged 40, a Slav, and a laborer by occupation, entered the Presbyterian Hospital, April 9, 1915, on the service of Dr. A. D. Bevan. Three days prior to admission, the patient was seized with a continuous severe pain in the upper abdomen, and a swelling about as large as a lemon was noticed midway between the umbilicus and the xyphoid cartilage. This mass had remained unchanged since first noticed, except that it had become very tender. Vomiting began shortly after the onset of the pain, and had been almost continuous. The patient complained bitterly of thirst, and stated that he had been unable to retain anything for three days. A small lump in the epigastrium had been present since the patient was a child. He stated that this appeared immediately after an accident in which a wagon passed over him. He also described a number of somewhat similar attacks, none of which had lasted more than a few hours. In each attack the above-mentioned swelling became larger and very painful.

Physical Examination.—The patient was a well-nourished man, retching and vomiting continuously. There was an acetone odor to his breath. His temperature on admission was 99.2 F., but his skin was cold and clammy. The abdomen was moderately distended. There was no fecal matter in the rectum. About 2½ inches above the umbilicus, there was a firm ovoid mass measuring 2½ inches in diameter. This mass was fixed to the abdominal wall in the median line, and was very tender to the touch. The overlying skin was reddened, but this was attributable to the use of hot applications. The diagnosis of strangulated epigastric hernia was made, and an immediate operation performed by Dr. Bevan.

Operation.—Under novocain (1:200) and epinephrin chlorid (1:100,000) infiltration anesthesia, a transverse incision 6 inches in length was made 3 inches above the umbilicus. The subcutaneous fat was carefully divided until a firm lemon-sized mass was reached. This mass was freed of all fat down to its base. It was found to be a hernial sac protruding through an almost circular aperture in the linea alba. The diameter of this aperture was approximately 1 inch. When the sac was opened, a small amount of dark brown fluid escaped. The peritoneal lining was reddened, granular and lustreless. Within the sac were almost 4 inches of small intestine, probably upper jejunum, in addition to some adherent omentum. The bowel was brownish-black, but improved markedly in color after the constricting ring had been enlarged by a lateral incision. A gray band 1½ inches long and one-fourth inch wide, which showed no tendency to change color, was covered over by Lembert sutures and the bowel replaced. The adherent omentum was ligated and resected. There was a small mass of fat adherent to the upper part of the sac. This may have been subperitoneal fat from the falciform ligament, though no effort was made to determine its origin. Closure was made by the Mayo[5] method, imbricating from above downward by means of three mattress sutures of heavy catgut. The free margin of the flap was sutured to the aponeurosis below by means of interrupted catgut. A small gutta percha drain was placed in the center of the wound, and closure made with interrupted silk sutures. Primary union was obtained, and the patient made a complete recovery.

Occasionally these hernias are confused with the umbilical type, which are much more common. The extreme rarity of strangulation of the epigastric variety, I believe, justifies this brief report. As far as I have been able to ascertain, this is the twelfth case of strangulation of an epigastric hernia to be reported, and the fifth case in which both omentum and intestine were present.

4. Moschowitz, A. V.: Surg., Gynec. and Obst., October, 1914, p. 520.

A NEW METHOD OF INTESTINAL ANASTOMOSIS

WITH A STUDY OF THE INTESTINAL MOVEMENTS AFTER ITS USE *

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There is considerable difference of opinion as to the choice of methods of intestinal anastomosis. Some of the advantages claimed for the lateral method are: First, that it permits approximation of broad surfaces of serous membrane; second, that a union can be made without regard to the relative size of the ends of the cut intestine; third, that the opening can be made as large as desired.

Although the opening can be increased in size, as advised by Abbe,[1] there is an extensive cutting of the circular muscular fibers and lack of mechanical reestab-

5. Mayo, W. J.: Further Experience with the Vertical Overlapping Operation for the Radical Cure of Umbilical Hernia, THE JOURNAL A. M. A., July 25, 1903, p. 225.

* From the Department of Experimental Surgery, University of Minnesota Medical School.

1. Abbe, Robert: Med. Rec., New York, 1892, xli, 365.

lishment, which necessarily impairs the peristaltic activity.

Some of the disadvantages, as observed by animal experimentation, are that indigestible substances, bones, straw and hair (Senn,[2] Reichel[3]) may accumulate in the blind proximal end of the bowel. The distal end may become invaginated until this portion fills the opening and produces obstruction (Cannon,[4] Ashton and Baldy,[5] Robinson[6]), especially if the blind ends are long and not carefully fixed. There may also be danger of interference with the blood supply to the blind ends if too little of the bowel is left beyond the opening (Corbett[7]). Cannon and Murphy[8] found stasis in the region of the lateral anastomosis as determined on animals which were kept for four days after operation on a waste-free diet and to which they gave an admixture of bismuth in thin boiled starch, observations being made with the Roentgen ray. They found stasis of this fluid, even after twenty-four hours, in the region of the anastomosis after all of the other unabsorbed material was in the colon. Stasis, as described above, was usually found in animals after from ten days to two weeks. They therefore thought it evident that the two united intestinal loops did not act in unison to propel the food, which in the region of the dilated lumen was pushed forward by peristalsis in the intact intestine, acting on the food proximal to the anastomosis. That there is a tendency of all lateral anastomoses to undergo cicatricial stenosis is generally recognized. Bloodgood[9] has recently ascribed failures, when anastomoses were done in resection of atonic colons, to the two blind extremities becoming tense and painful diverticuli.

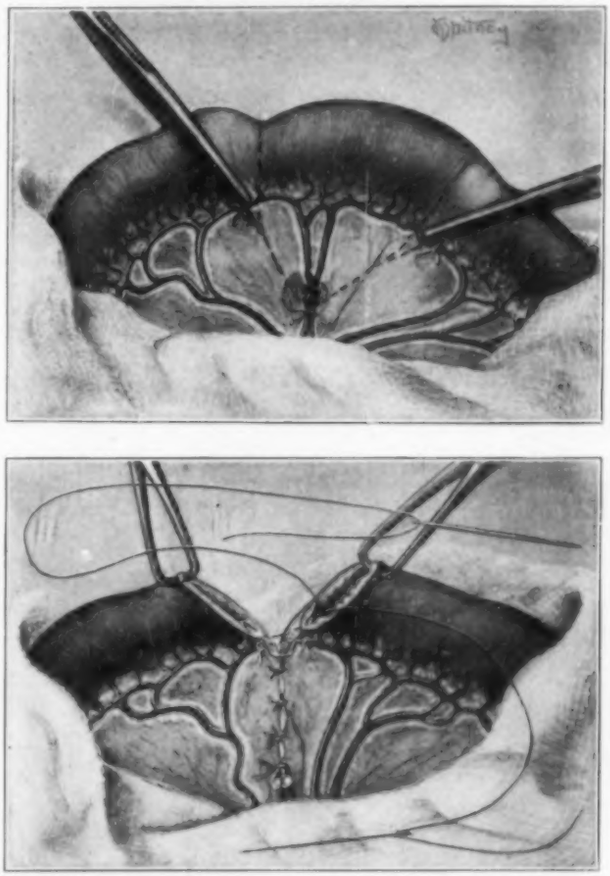

Fig. 1.—In the upper illustration, the dotted lines between the clamps indicate the direction of the usual division of the intestine. The clamps are put on at a 45-degree angle. The dotted lines on the healthy bowel side of the clamps indicate the sites of division. In the lower illustration, the mattress suture to occlude the uncovered area has been introduced, with a needle on both ends to approximate the richer vascular portions first.

As to the end-to-end anastomosis, it may be more quickly done. Cannon and Murphy[8] were able to observe at no time a stasis of food after the end-to-end union of the severed bowel, and therefore recommend this procedure in preference to the lateral anastomosis because of the rapid resumption of normal function. Their observations were made on cats and performed with the Connell suture. Küttner, Senn[2] and Gibson[10] asserted that it is not possible to get this wide contact of serous surfaces, which is desired, without narrowing the lumen of the bowel so much that obstruction is probable, or that stenosis due to contracture or to a diaphragm may result. There is also the possibility of producing ischemic necrosis from interference with the circulation of the mesenteric vessels. The danger resulting from insufficient approximation of serosa is indicated by a case reported by Elsberg[11] in which the end-to-end anastomosis was found, at the secondary operation performed at the end of ten days, to have failed at one point.

Other methods of intestinal anastomosis have not come into general use, and some of them are open to serious objections. Some of the better known are perhaps those of Maunsell,[12] Cheattle,[13] Ferguson,[14] Grant with Turk's modification,[15] Soresi,[16] Horsley,[17] Maury's[18] twine triangular stitch, and Bloodgood's[19] side-to-side ends together; and there are numerous others.[20] The artificial aids, according to Reder,[21] may be convenient in occasional conditions of intestinal surgery, and they are usually either dissolved or passed. In the end-to-side or lateral implantation, Reder states that the technic is more difficult than the end-to-end or lateral union, and besides has the serious drawback of frequently resulting in stenosis.

On account of the foregoing objections to these methods of intestinal union, I have modified the technic of the end-to-end anastomosis and devised a new method. Before I describe the technic, some of the other modifications may be mentioned.

2. Senn: Ann. Surg., vii, 13.
3. Reichel, quoted by Cannon and Murphy: Ann. Surg., 1906, xliii, 519.
4. Cannon, W. B.: The Mechanical Factors of Digestion, p. 140.
5. Ashton and Baldy: Med. News, 1891, lviii, 235.
6. Robinson, F. B.: Med. Rec., New York, xlii, 188.
7. Corbett, J. F.: Personal communication.
8. Cannon and Murphy: Ann. Surg., 1906, xliii, 512.
9. Bloodgood, J. C.: Condition of Patients After Partial or Complete Resection of the Colon, abstr., THE JOURNAL A. M. A., July 10, 1915, p. 193.
10. Gibson: Ann. Surg., lii, 116.
11. Elsberg: Ann. Surg., lii, 116.
12. Maunsell, quoted by Moynihan: Abdominal Operations, 1914, i.
13. Cheattle: Lancet, London, 1897, i, 1403.
14. Ferguson: Am. Gynec. and Obst. Jour., 1900, xvi, 468.
15. Turk: Surg., Gynec. and Obst., xvi, 324.
16. Soresi: Surg., Gynec. and Obst., xv, 110; ibid., 1915, xx, 225.
17. Horsley, in Fowler: Treatise on Surgery, 1907, ii, 65.
18. Maury: Ann. Surg., June, 1905, p. 914.
19. Bloodgood: Ann. Surg., February, 1909, p. 161.
20. Lundholm, E. M.: A New Instrument for Intestinal Anastomosis, THE JOURNAL A. M. A., Sept. 27, 1902, p. 769. Gilbert: Med. Rec., New York, 1904, lxvi, 957. LaPlace: Philadelphia Med. Jour., 1898, i, 1120. Downes: Philadelphia Med. Jour., 1899, iii, 285. O'Hara, M. G.: Ann. Surg., 1901, xxxiii, 170. French: Am. Med., 1902, iv, 90. McGraw, T. A.: Upon the Use of the Elastic Ligature in the Surgery of the Intestines, THE JOURNAL A. M. A., May 16, 1891, p. 685. Senn, William: Pressure Clamp for Lateral Anastomosis, THE JOURNAL A. M. A., April 20, 1907, p. 1350.
21. Reder: Lancet-Clinic, 1914, cxii, 662; abstr., Surg., Gynec. and Obst., May, 1915, p. 490.

In the oblique enterorrhaphy described by R. T. Morris[22] and M. E. Connell,[23] with the 180-degree mesenteric twist, the ends are cut more or less obliquely to give a larger internal diameter and lessen the danger of gangrene and stenosis. F. G. Connell[24] cut the ends slightly convexo-oblique in some experimental unions. Madelung[25] was the first to cut the ends obliquely, in the end-to-end unions, to avoid gangrene and give a larger lumen. Parker and Kerr[26] cut the ends of the bowel obliquely, uniting them with their basting stitch method. They state, however, that after making the union, absolutely no angulation was apparent, and even at later removal of these specimens, the bowel at the site of suture was apparently straight. As the method of cutting the ends more or less obliquely is not new, though perhaps not emphasized enough now, the application of it, in securing a right angle result, may aid in impressing its value.

Fig. 2.—This specimen with a right angle union (Experiment 3) was removed sixty-seven days after operation. The angle of the union when removed was practically the same as when the operation was performed. There were no adhesions.

The technic of the right angle is modified from the circular end-to-end, in that the bowel is cut at an angle of 45 degress leaving the oblique mesenteric sides. The mesenteric portions are approximated first by a mattress suture, which when tied on the inside occludes the uncovered area of the bowel and invaginates the edges. With a needle on each end of this suture, they are continued around so that this mesenteric half is first sutured accurately with a hemostatic buttonhole stitch. These are then continued as Connell sutures, ending at that portion of the bowel opposite the mesentery. A Dupuytren's stitch is now taken outside the first stitch to approximate a wide area of serosa. A few stitches join the mesenteries. If the ends are of unequal size, one may be cut more obliquely or an incision may extend up opposite the mesentery, as Curtis[27] suggested in the end-to-end union. Where a lateral implantation is desired, the end may be cut obliquely as above (Figs. 1, 2, 3 and 7). The right angle union has advantages over the usual end-to-end in that it not only has a richer blood supply, but the angle of the blood vessels toward the union lessens the danger of the second row of sutures causing gangrene of the inverted margin of the bowel. There is, therefore, less danger of leakage at the suture line, and also of contraction and stenosis. This can be done as simply as the circular union. Senn[2] asked, "Does simple flexion, even if acute, without diminution of the lumen of the bowel, give rise to symptoms of obstruction?" He experimentally observed that it did not. There is a flexion of the bowel, perhaps to more than a right angle, in the "elbow anastomosis" of Jeannel,[28] in which in an injury to the bowel opposite the mesenteric portion that near the mesentery is left intact and angular union effected.

C. C., aged 8 years, entered the University Hospital, Jan. 6, 1915, and was operated on for a ruptured gangrenous appendix with drainage of abscess. February 6, he returned with symptoms of obstruction, for which an enterostomy was done. March 13, he was operated on by Dr. Ritchie for closure of the enterostomy. This was dissected out, and conditions requiring a small resection found; the right angle technic described above was used. The patient made an uneventful recovery, and was discharged, April 3. July 12, 1915, the boy was in perfect health and gaining in weight.

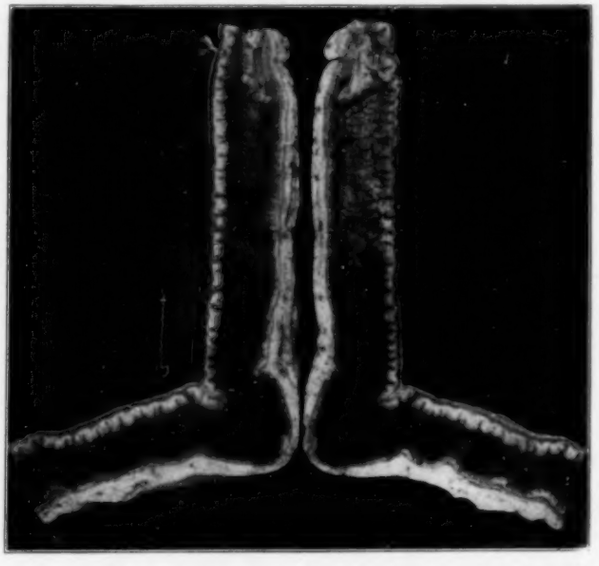

Fig. 3.—This specimen of a right angle union from Experiment 3 sixty-seven days after operation is shown after having been divided longitudinally. The lumen at the union is distinctly larger than the remainder.

In the new method of notch enterorrhaphy, the area to be resected is decided on, soft jawed clamps covered with rubber may be applied to prevent the intestinal contents escaping, and the field is packed off with moistened gauze. The mesenteric vessels supplying the bowel to be resected are ligated. Double clamps are put on the ends of that portion to be resected. The bowel is cut between the clamps with a cautery, leaving them temporarily on the ends to be united. The ends of the bowel that are to be united are overlapped for union as far as desired, restoring the direction of peristalsis. The overlapping of about 2 inches is usually satisfactory. A Dupuytren's stitch taken along the sides near the mesenteries approximates them. The clamps temporarily holding the ends of the bowel closed may now be cut away, leaving healthy bowel ends. The sides of the intestines which approximate each other are nearly cut away, beginning at the end of the lumen, leaving a

22. Morris, R. T., in Smith, Stephen: Operative Surgery, 1887, p. 502.
23. Connell, M. E.: Med. Rec., New York, xlii, 335; ibid., xliii, 125-413.
24. Connell, F. G.: Philadelphia Med. Jour., 1899, i, 37.
25. Madelung: Arch. f. klin. Chir., 1881-1882, xxvii, 277.
26. Parker and Kerr: Bull. Johns Hopkins Hosp., xix, 136.
27. Curtis, B. F.: Med. Rec., New York, xli, 419.
28. Jeannel, in Moynihan: Abdominal Operations, 1905, p. 364.

small edge of the side near the mesentery for the approximation of serosa by an inner stitch through all of the coats of the bowel. A similar width of the bowel is left on the convex side for approximation and invagination by sutures. These notched sections of bowel left should have rounded corners in order that they may be accurately approximated, though nearly a rectangle has been removed. A hemostatic buttonhole stitch is started on the side near the mesentery through all of the coats of the bowel, and continuing around the other side as a Connell suture invaginating their edges. The Dupuytren's stitch previously started is now continued around the first suture line, approximating a safe margin of serosa and completely reestablishing the bowel both as to shape and size. The edges of the two overlapping mesenteries are stitched down with a few interrupted stitches (Figs. 4, 5, 6 and 7).

There are very definite advantages to be gained in the notch intestinal anastomosis in that a large opening can be secured as well as one that functions satisfactorily. Therefore, there is no danger from stenosis and contracture. There is an excellent mechanical and a good physiologic union of their fibers. There are no blind ends, which may be sources of danger, as shown above, in the lateral anastomosis, even though later the ends may atrophy and the lateral opening become more axial (Edmunds and Ballance[29]). There is a good blood supply, as each notched end has its own mesentery intact. There is less danger of interference with the blood supply of the mesentery from injury than in the end-to-end union, and no danger of injuring the blood supply to blind ends, as in the lateral union, which might result disastrously.

The animals operated on had nothing to eat for twenty-four hours, and with few exceptions were given a moderate physiologic dose of morphin about forty-five minutes before the operation. Ether was used throughout. Following the operation, they were given a general diet, except bones, as desired. The ones used for Roentgen-ray work had not been fed for twenty-four hours. In operating, care was used to prevent drying of the peritoneum, and injury. In the cases used for the Roentgen ray, efforts were made to avoid any unnecessary stimulation and trauma, so all stripping of the intestine to remove contents was avoided, and no clamps were applied to the bowel. In using the Connell stitch, which was used on the last half of the union of the bowel ends, I found it of value to keep this suture taut by tension on the thread only on the mucosal side. The loop and needle thread can be used as a hammock to swing the serous surfaces together, where they are held by tension on the loop, until the needle comes out of the mucosa on the other bowel. This allows more accuracy in getting the stitches even, and prevents distortion of the edges (Fig. 4, lower illustration). For suture material chromic catgut was found satisfactory for the inner suture, and Pagenstecher linen for the second seromuscular row.

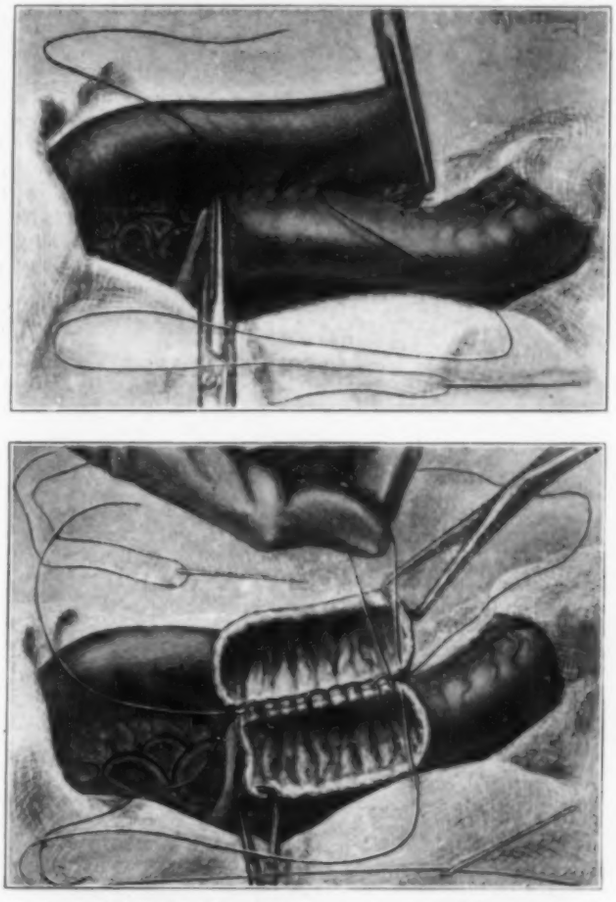

Fig. 4.—In the upper illustration, the sides of the two overlapped ends are being approximated near the mesenteries. The two clamps will be cut off with their enclosed crushed bowel, leaving healthy ends, after this suture has been completed near the mesenteries. In the lower illustration, the clamps have been cut away and the sides of the bowel have been cut out, except a narrow margin along the mesentery and also along the convex side for invagination. The inner suture with the buttonhole stitch has been completed and the Connell stitch for the remainder of closure begun. The serous surfaces are swung together by tension on the sutures only when they are on the mucous sides of the bowel. This loop is held till the needle again comes out on mucosa. It is of advantage to have needles on both ends of the inner stitch. Only one is shown above.

PROTOCOLS OF ANIMAL EXPERIMENTS

EXPERIMENT 1 (A. E. 668).—Dog, weighing 18 kg., was operated on, March 1, 1915, the section and a right angle union of the ileum being performed. Convalescence was uncomplicated. The animal was chloroformed, March 18, 1915, and at necropsy there were no adhesions except one small area on the suture line to the omentum. The union was nearly at a right angle, and there was no evidence of stasis. On sectioning, the union was found healed and practically the same size as the bowel.

EXPERIMENT 2 (A. E. 687).—Dog, weighing 8.7 kg., was operated on, March 15, a high intestinal section being made just below the duodenojejunal angle with a right angle union. Convalescence was uncomplicated. March 24, the dog was chloroformed. At necropsy, the abdomen was found to be clean. There was a small adhesion of the omentum at a part of the suture line. There was no evidence of stasis. On section, a good healed lumen of at least normal size was found. March 16, twenty-four hours after operation, a meal containing 60 gm. of bismuth subnitrate in 300 c.c. of buttermilk was given. At twenty-five and forty minutes after the meal, roentgenoscopy revealed that the shadow of the bismuth had passed the pylorus and had reached about 10 and 15 inches below the duodenojejunal angle, beyond the site of the union, with no evidence of stasis or dilatation. March 19, four days after operation, a similar meal was given. Twenty minutes later, on roentgenoscopy, the bismuth shadow was about 15 inches below the duodenojejunal angle. There was a shadow of bismuth in the colon from the previous meal. Thirty-five minutes after eating, before which the dog had vomited part of the meal, there was some advancement in the bowel. The shadow was lacking somewhat in the fundus and body

29. Edmunds and Ballance: Med.-Chir. Tr., lxxix, 254.

of the stomach, but the antrum was well filled as before. There was very little difference in this good motility on the first and fourth days after this high intestinal section.

EXPERIMENT 3 (A. E. 703).—Dog was operated on, March 26, 1915, a section just below the duodenojejunal angle and a right angle union being made. Convalescence was excellent. The dog was chloroformed, June 2, 1915, and at necropsy there were no adhesions present; the right angle was practically the same as after operation. There was no evidence of stasis; peristalsis could be elicited in this region before death. The union was healed. On the same day of the operation, one hour and thirty minutes after its completion, the usual bismuth meal was given. On roentgenoscopy, ten and twenty minutes later, there were contraction rings and a very little shadow beyond the incisura angularis. There was no shadow beyond the pylorus. Forty minutes after eating, roentgenoscopy revealed the antrum filled, and there was a shadow of bismuth 5 inches below the pylorus in the duodenum. Contraction rings were present in the stomach.

EXPERIMENT 4 (A. E. 750).—Dog was operated on, April 30, 1915. No morphin was given. A section just below the duodenojejunal angle was made, and the oblique ends joined at a right angle. At necropsy, May 13, 1915, there was a small area of two loops of bowel adherent some distance from the union, and a small adhesion of the suture line to the omentum. There was no evidence of stasis or dilatation; the union was still nearly a right angle. On section, the lumen was good and healed over. On the day of the operation, one hour and thirty minutes after its completion, the dog was given the bismuth meal. Twenty minutes after eating, roentgenoscopy revealed the stomach filled with bismuth; a contraction ring was present and the bismuth extended through the pylorus about 5 or 6 inches into the duodenum. On roentgenoscopy thirty-five minutes after eating, a contraction ring was present in the stomach, and there was some advancement of bismuth in the duodenum. On roentgenoscopy one hour and five minutes after eating, there was a definite advance of the bismuth to only about 10 inches.

EXPERIMENT 5 (A. E. 519).—Cat was operated on, March 8, 1915, a piece of the ileum being resected, and the ends united by the notch method, described above. Convalescence was good. The cat was chloroformed, May 7, 1915, and at necropsy the bowel at the union was found of normal size, straight, and there were no adhesions. There was no evidence of stasis. On section, the healed suture lines could be seen by a slight inverted edge along them; the bowel was very well reestablished.

EXPERIMENT 6 (A. E. 683).—Dog was operated on, March 12, 1915, a section of the jejunum being made close below the duodenojejunal angle, and the ends united after the above-described notch method. The resulting reestablished bowel was slightly larger than the normal. Convalescence was excellent. July 6, 1915, the dog was operated on again. There were no adhesions except one very small area on the suture line to the omentum. The bowel at the union resembled that above and below, although a slightly larger diameter in the region of union. Peristalsis at the union could be elicited. The specimen was resected and examined: at no place was there found a decrease in the lumen at the region of the anastomosis, and it was completely healed. On the day after the first operation, March 13, a bismuth meal was given. On roentgenoscopy fifty minutes after eating, the bismuth had passed the pylorus and reached a point about 15 inches below the duodenojejunal angle. There was no evidence of obstruction. On roentgenoscopy sixty minutes after eating, there was some advancement, which was also present at seventy minutes after eating. March 16, four days after operation, a bismuth meal was given. On roentgenoscopy thirty minutes after eating, the bismuth extended about 30 inches, or about twice as far as on the first day after operation, with no evidence of stasis at the union.

Fig. 5. — This specimen with a notch method union, Experiment 6, was removed 115 days after operation. The only adhesion present is shown. This is a small area on the suture line to the omentum. The size of the bowel at the union is the same as the day when the operation was completed.

Fig. 6.—This specimen of a notch method union from Experiment 6 was split slightly to one side of the middle. The suture lines cannot be seen on the mucosal side. The slight increase in size of the lumen was made at the operation. There is no place where the lumen is narrowed.

EXPERIMENT 7 (A. E. 746).—Dog was operated on May 7, 1915, a lateral anastomosis being performed just below the duodenojejunal angle. This dog is still living. On the same day of the operation, an hour and a half after its completion, a bismuth meal was given. On roentgenoscopy twenty-five minutes after eating, there was very little bismuth in the antrum and none beyond the pylorus. On roentgenoscopy sixty minutes after eating, the antrum was filled and a contraction ring was present. There was no bismuth beyond the pylorus.

EXPERIMENT 8 (A. E. 773).—Dog was operated on, June 7, 1915, to note the movements and passage of bismuth after an operation on the stomach, a typical posterior short loop gastrojejunostomy being done. On the day of the operation, thirty minutes later, a bismuth meal was given. On roentgenoscopy ten minutes after eating, the bismuth extended very slightly into the antrum, and from this a bismuth shadow extended through the newly made opening about 10 or 12 inches into the jejunum. There was no bismuth beyond the pylorus. On roentgenoscopy forty minutes after eating, there was little change except some advancement in the jejunum. On roentgenoscopy one hour and forty minutes after eating, there was little change in the stomach, still no bismuth below the pylorus, but there was advancement to about 15 or 20 inches in the jejunum below the newly made opening. There was a small contraction ring in the stomach.

EXPERIMENT 9 (A. E. 683).—Dog was operated on, July 6, 1915, a specimen of union being resected from just below the duodenojejunal angle and the proximal end invaginated and closed tightly. The distal end was cut obliquely and

anastomosed to the posterior surface of the stomach near the pylorus. The dog was not lively after this operation, and became emaciated. The dog was chloroformed, July 15. At necropsy the stomach was markedly distended with clear fluid, and the duodenum very markedly distended to the tied end of the jejunum. The gastrojejunostomy opening was patent, of good size, and when the stomach was lifted, the fluid contents ran into the jejunum through this opening. The lumen was practically healed and about the size of normal bowel in this region.

MOVEMENTS OF THE STOMACH AND INTESTINES AFTER HIGH SECTION AND UNION BY THE FOREGOING METHODS

The right angle unions done close to the duodenojejunal angle caused from no apparent delay of food at the pylorus to slightly over twenty minutes. In the one instance a lateral anastomosis caused a delay of over sixty minutes. In both instances of appreciable delay, morphin had been given. Twenty-four hours and four days after operation by the right angle and notch methods, there was no delay observed at the pylorus, as observed by the Roentgen ray.

In contrast to the foregoing, Cannon and Murphy,[8] in observations on cats after a high intestinal section and union, found a delay of five or six hours at the pylorus, although gastric peristalsis was good all of the time. They ascribe a protective function to the pylorus, in that its closure prevents the stomach contents coming into contact with any wound of the peritoneum until the peritoneal surfaces have been agglutinated, as after five or six hours they may afford efficient support (Abbe[30]). They observed only a very small effect on movements of the stomach and small bowel due to etherization, to section of the abdominal wall, exposure to the air, or unusual cooling.

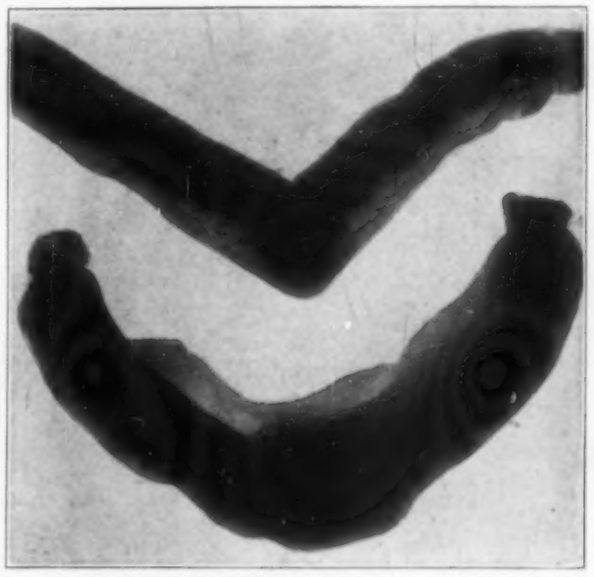

Fig. 7.—The specimens of a right angle union sixty-seven days after operation, and a notch method union 115 days after operation, are shown filled with bismuth. The union in neither case has narrowed the normal lumen of the bowel.

Motor function of the stomach, evidenced by rings of contraction, was present in all of my cases, although when delay at the pylorus occurred there was an early imperfectly filled antrum. In the posterior short loop gastrojejunostomy, in which surgical handling and section of both the stomach and jejunum were done, the bismuth was delayed at the pylorus over two hours after the meal, though the bismuth passed almost immediately through the newly made stoma into the jejunum, where advancement was sluggish. After the most gentle handling of both stomach and intestines, Cannon and Murphy observed no movements of the stomach and no discharge from the pylorus for three hours, while rougher handling caused a longer period of loss of motor function. They observed a local paralyzing effect of section and union of the intestine in that no food came closer than 5 or 6 inches during the seven-hour period of observation.

30. Abbe, quoted by Cannon and Murphy (Footnote 8), p. 516.

The localized loss of propulsing peristaltic contraction waves was present in all of my cases of intestinal section and union from immediately after operation to an hour and over, which was the limit of my observations. However, in the case of the gastro-enterostomy, the bismuth passed the union without noticeable delay, although the advancement in the jejunum was sluggish.

The local loss of motor function after intestinal section and suture may be due largely to the handling, and this stimulation excites possibly Bayliss and Starling's law of the intestines, that of inhibition below and contraction above a point of stimulation. The nerve mechanism for the propulsing peristaltic contraction wave, alone, may be inhibited or fatigued, while possibly the rhythmic pendular movements are not thrown out, as these are probably myogenic in origin. It is probable that a general inhibition of the intestines can be produced reflexly, through the splanchnics, by stimulation of the intestines and also probably of any sensory surface (Bayliss and Starling[31]).

Cannon and Murphy found a twenty-four hour stasis at the site of union on cats fed on a waste-free diet, even four days after operation, when a lateral anastomosis was done. This was more marked on a general diet two weeks later. They found no stasis in the end-to-end union twenty-four hours after operation or later, and recommend its use when a rapid resumption of normal bowel function is desired.

In the foregoing observations on the right angle and the notch methods, there was no evidence of stasis at the union, and these methods are also recommended when a rapid resumption of normal bowel function is desired.[32]

CONCLUSIONS

1. There are distinct advantages of the notch and right angle over the circular end-to-end and lateral anastomoses.

2. There is as early a resumption of physiologic function in the notch and right angle anastomoses as in the circular end-to-end.

3. The pylorus, if controlled in dogs by a special protective mechanism, does not delay the food there from five to six hours after a high intestinal union, while the gastric peristalsis is active, as described by Cannon and Murphy in cats. There may be from no demonstrable delay to a short delay in certain cases.

31. Bayliss and Starling: Jour. Phys., xxiv, 108, 114, 121.

32. In addition to the references already given, the following are of interest:
George: Jour. Michigan State Med. Soc., September, 1910, p. 431; Am. Jour. Surg., November, 1909.
Hedblom and Cannon: Ann. Surg., cxxxviii, 504.
Gatch, W. D., Aseptic Intestinal Anastomosis, THE JOURNAL A. M. A., July 20, 1912, p. 185.
Walker, F. B.: Intestinal Anastomosis: Presentation of a New, Simple and Aseptic Method, THE JOURNAL A. M. A., Aug. 15, 1908, p. 546.
Keen's Surgery, 1914, iv, 713-725; vi, 535-539.
Binnie's Operative Surgery, 1912.
Murphy, J. B.: Med. Rec., New York, xlii, 665.

4. Following any intestinal anastomosis, a localized loss of motor function remains, and possibly a general reflex sluggishness of the intestinal tract, varying to some extent with the degree of trauma, emphasizing the importance of delicate surgical technic.

5. There may not, necessarily, be a complete temporary loss of gastric motor function after necessary surgical handling for union to the bowel.

LINITIS PLASTICA HYPERTROPHICA (LEATHER BOTTLE STOMACH)

REPORT OF A CASE *

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Linitis plastica hypertrophica is the rather fanciful name given by Dr. William Brinton in 1854 to a condition of the stomach in which there is great thickening of the walls at the expense of its lumen, due to a fibrosis involving principally the submucous, but to a lesser degree all the coats except the mucosa. The interlacing strands of fibrous tissue, which resemble in appearance coarse linen, suggested the name to Brinton.

Two forms of the disease are recognized, one localized, the other diffuse. In the localized form the pathologic change is limited to a certain area of the stomach, usually the pyloric region, although the indurated plaques may occur anywhere in the wall. The diffuse form involves the entire stomach, which is most often shrunken but may retain the normal size or may be dilated. The wall is rigid, and thickened to six or eight times its normal size. The thickening is sharply limited to the stomach, while the thin walled normal duodenum affords a striking contrast. This rigid thick walled contracted stomach suggested the synonym given to the disease.

Fig. 1.—Linitis plastica, showing the dense fibrosis of the submucosa and the segmentation of the muscularis by the white fibrous partitions. The specimen is the resected pyloric region from a patient with the localized form of the disease. (Photograph by Schapiro.)

In gross appearance, the stomach in this disease shows a smooth, pearly white, dull peritoneal surface. The thick wall cuts with a creaking sound, and the limits of the different layers are distinctly shown, a distinction from the scar tissue of a healed ulcer. The glistening bands of the new connective tissue are visible to the naked eye. The mucous membrane is normal or thin. Atrophy and ulceration are said to be rare, but Thomson and Graham[1] state that in seven of nine specimens examined "there is situated in the center of the affected area a deeply punched out ulcer; the surrounding mucosa, instead of being as soft as velvet, freely movable on the subjacent coats, and showing prominent rugae, is firm and unyielding, is closely adherent to the submucosa, and presents a hillocky surface, corresponding to variations in thickness of the fibromatosis in the submucous coats."

The submucosa shows the greatest change. This loose layer of areolar tissue becomes solid and tough, and so thick that it makes up a great portion of the gastric wall. Segmentation of the circular muscle by the fibrous tissue is easily seen, the colored muscle bundles separated by the partitions of white fibrous tissue standing out clearly. This segmentation is characteristic of linitis plastica, and distinguishes the hypertrophy of the layer of circular muscle in this disease from that occurring in obstruction of the pylorus. Late in the disease the mucous membrane always shows the effects of long continued circulatory disturbance.

Microscopically the connective tissue proliferation is the most striking feature. The irregular, interlacing bands of fibers surround the blood vessels and traverse the various layers of the stomach. The endarteritis occasionally observed is probably an evidence of syphilis, which is an unquestioned etiologic factor in some of the cases reported. These cases are all of the localized variety, and probably should be kept in a separate group.

The effect of the fibrosis on the mucous membrane gives a varying microscopic appearance. The difficulty of distinguishing between the microscopic appearance of cancer and that of isolated glands separated from their fellows by connective tissue proliferation is so great that it probably accounts for part of the controversy regarding the benign or malignant nature of this disease. Lyle has made an exhaustive study of linitis plastica, and has collected reports of seventy benign cases and sixty additional cases reported as linitis plastica which are malignant.

The difficulties of microscopic diagnosis have been noted, and further confusion is added by the fact that in several cases in which the microscopic picture was considered definite, the patients are living and well so long after operation that the malignant nature of their

* Read at the semiannual meeting of the Medical and Chirurgical Faculty of Maryland, at Westminster, Oct. 28, 1915.

1. Thomson and Graham: Ann. Surg., 1913, lviii, 10.
2. Lyle: Ann. Surg., 1911, liv, 625.

disease must be questioned. Many times the operations were deliberately planned for palliation only, but the end-result proved that the patient had been cured.

It is not unlikely that we have both benign and malignant forms of this disease. The diffuse scirrhous carcinoma of the stomach should be considered a separate entity. Stasis and ulceration are frequent associates in pathologic process. Both have a marked effect on connective tissue proliferation. Bland-Sutton,[3] discussing leather bottle stomach, compares the change in the stomach with that occurring in the shrunken gallbladder of cholecystitis, and notes a similarity. There can be no doubt that an ulcer, either directly by admitting irritant or infectious material into the submucous tissue, or indirectly by occluding the pylorus, originates a sequence of pathologic changes which will ultimately result in fibrosis. In certain individuals this fibrosis takes the peculiar arrangement noted in linitis plastica. Similarly, a cancer, either by obstruction or ulceration, may lead to the same change. Finally, the cancer originating in an ulcer may complicate the picture, especially should the malignant development follow that of the fibrosis. In the latter event, as Thomson and Graham show, the local cancerous growth is so modified by the fibrosis that it may be difficult to recognize except by most careful microscopic examination. The tumor cells, however, permeate the lymphatics and invade the neighboring lymph glands. Here the carcinoma is easily recognized. At the present time, therefore, the examination of the lymph nodes and detection of metastases in them seems the only evidence we may secure to make certain the malignant nature of a specific case.

Fig. 2.—Microscopic picture of linitis plastica, showing the fibrosis of the submucosa, the involvement of the muscularis, and the effect on the mucosa. (Photomicrograph by Schapiro.)

The disease is one of adult life. Lyle's statistics show that the greatest number of cases occur between the ages of 40 and 60 years, and about twice as often in men as in women. Some form of disease associated with general circulatory stasis is frequently noted in the previous history of the patient.

The symptoms of onset are generally slight, indefinite dyspepsia (Lyle), loss of appetite, epigastric distress on taking food, and eructations. The symptoms gradually become marked and progressive, reaching those of definite stenosis, and if unrelieved end in anemia, starvation, cachexia and death.

Occasionally the onset is quite abrupt, and the obstructive symptoms come on rapidly.

Gastric examination shows a diminished capacity of the stomach, and the stomach cannot be distended. The thick stomach has been palpated as a sausage-shaped tumor in the epigastrium. Chemical examination of the contents usually shows diminished acidity with little or no free hydrochloric acid. Lactic acid may be present. Blood in either stomach contents or feces is unusual. Roentgen examination offers the best means for recognizing the lesion. The shadow of a small stomach shows a sharp outline, with little or no peristaltic contracture. Serial pictures indicate the degree of stenosis. Sailer[4] notes a rapid emptying of the stomach, owing to the bismuth flowing through the rigid tube of stomach almost immediately into the duodenum.

Gastrectomy is the operation of choice for the localized form of the disease. When the patients are feeble, the two-stage operation, preliminary gastro-enterostomy and secondary gastrectomy, is advised. Thomson and Graham suggest the removal of a lymph gland at the first operation to serve as a guide for subsequent procedure. They state that a metastasis in the gland is the indication for secondary resection. This teaching, however, would leave unoperated the class of cancers in which cure is most likely to follow partial gastrectomy, namely, those which have not yet metastasized to lymph glands. Therefore, although the surgeon should remove the gland for diagnosis, his judgment regarding resection should be based on the conditions observed in the abdomen. Dense adhesions to the peritoneum or to other viscera, if due to cancer, make the complete removal impossible and indicate a palliative operation, while a doubtful mass, not adherent, should always be excised.

For the diffuse form, complete gastrectomy has been performed a few times. The usual operation is gastro-enterostomy and occasionally jejunostomy.

REPORT OF CASE

The patient (Surgical No. 40090, Mercy Hospital, Abdomen, Stomach, Linitis Plastica Hypertrophica Diffusa) was a white woman, aged 22, transferred from the service of Dr. J. Friedenwald. There was a previous history of typhoid fever ten years ago. The onset of the present illness was abrupt, twenty days ago. The initial symptom was vomiting, which continued daily, with acrid eructations occurring almost constantly. There were slight pain in the abdomen and marked constipation. There has been a progressive loss of weight.

The patient was greatly emaciated, the abdomen scaphoid. There were no masses or tender points. The liver was not enlarged. The thoracic viscera were normal.

Analysis of stomach contents showed a total acidity of 10, with absence of hydrochloric and lactic acids. Blood examination revealed: red blood cells, 3,240,000; hemoglobin, 60; white blood cells, 8,000. The Wassermann reaction was negative. Roentgen examination revealed a small vertical stom-

3. Bland-Sutton: Brit. Med. Jour., 1914, i, 229.

4. Sailer: Tr. Am. Gastro-Enterol. Assn., 1914, p. 31.

ach, pyloric stenosis, retention and diminished peristaltic contracture.

The possibility of linitis plastica was considered because of the small stomach, the evident obstruction and the improbability of scirrhous cancer at the age of 22.

A posterior gastro-enterostomy was done. When the abdomen was opened, the stomach was found small and not adherent. The peritoneal surface was a dull grayish purple, the walls rigid and very thick. The pylorus would not admit the little finger. It was impossible to close the gastro-enterostomy clamp in the usual way, and therefore the one on the stomach was not used. After the usual two posterior rows of linen sutures were in place, the stomach and jejunum were opened. The stomach wall was about 15 mm. thick, and each layer stood out distinctly, the muscularis showing especially the glistening fibrous bands. The mucous membrane was thin and friable, and the strings of white fibrous tissue running up from the submucosa showed plainly as they ran into the cyanotic mucous membrane, and seemed to anchor it to the deeper layers. In contrast, the jejunum was thin walled, and the mucous membrane protruded from the incision. A continuous catgut suture united the mucous layers, and the two rows of linen sutures were carried around on the front of the anastomosis. The mesocolon was sutured in place, and the wound closed in layers.

The patient made an uneventful recovery, taking solid food on the tenth day. She is now in perfect health, two and one-half years after the operation.

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ACTION OF "AUTOLYSIN" ON MOUSE TUMORS *

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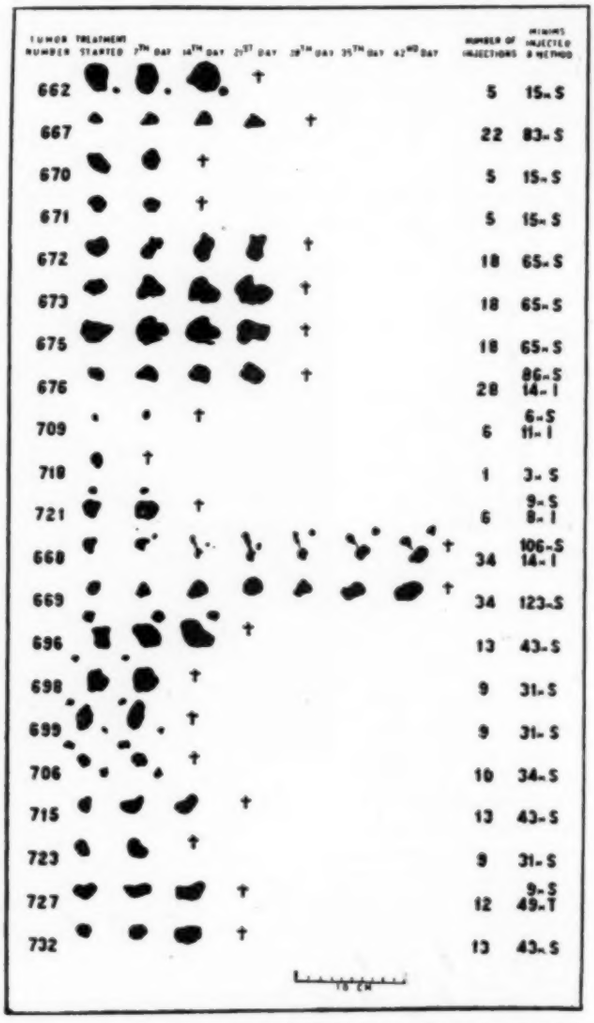
The use of "autolysin" in the treatment of cancer has been so widely heralded, in both the lay and the professional press,[1] that it was deemed proper to conduct the following experiments in order to determine whether the preparation has any action on tumors in mice, the malignancy and clinical course of which are quite comparable to those of human cancer. Twenty-one animals bearing spontaneous tumors were used in the test. It is generally agreed that spontaneous tumors in mice very rarely regress, and this has been our own experience, since we have never noted a regression in about 800 spontaneous mouse tumors observed. Accurate measurement shows that these neoplasms grow progressively, though an apparent recession may be produced by the contraction and absorption of the hemorrhages that so often occur in them. These extravasations, when they first take place, lead to a sudden augmentation in the dimensions of the tumors, which, though it suggests an increase in growth energy, is just as illusory as the subsequent contraction. When disturbing factors such as these are disregarded, the growth of the neoplasms is found to be steadily progressive in practically every case, death occurring within a few months. The decrease in the size of Tumors 668, 669, 671 and 723, as shown in the accompanying chart, is explained by the foregoing observations, and cannot be attributed in any way to the action of "autolysin," since it is, as has just been stated, of frequent occurrence in untreated mice.

No tests were made on mice bearing transplanted tumors, for the reason that a number of such growths may spontaneously disappear after the tumor has reached a certain size. Though this does not always occur in all strains of transplanted mouse tumors, some of which after inoculation grow progressively and kill the animals, yet it was felt that it would be wiser to use in the experiments a type of tumor in regard to which no question could be raised as to spontaneous disappearance and therapeutic effect. Attention has been called, not only to the publications of this laboratory,[2] but also in the monographs of the Imperial Cancer Research Fund and of a number of other laboratories where careful records of the course of growth in tumors are kept, to the disadvantage of using transplanted tumors of unknown biologic qualities. Despite these warnings, reports are constantly made of the successful treatment of 10 or 20 per cent. of animals inoculated with tumors whose regression percentage may normally quite exceed these figures.



Spontaneous tumors treated with "autolysin": † died; *M*, minims; *S*, subcutaneous; *I*, intravenous; *T*, into the tumor.

* From the George Crocker Special Research Fund, Columbia University.

1. Beebe, S. P.: New York Med. Jour., 1915, ci, 981; ibid., 1915, cii, 689.

2. Wood, F. C., and McLean, E. H.: The Effect of Phloridzin on Tumors in Animals, Proc. Soc. Exper. Biol. and Med., 1915, xii, 135. Woglom, W. H.: Diet and Tumor Growth, Jour. Exper. Med., 1915, xxii, 766. Rohdenburg, G. L.: Colloidal Silver with Lecithin in the Treatment of Malignant Tumors, Jour. Med. Research, 1915, xxxi, 331. Rohdenburg, G. L., and Bullock, F. D.: The Influence of Autolytic Products on Tumor Growth, Med. Rec., New York, 1915, lxxxviii, 233.

Spontaneous neoplasms were employed, furthermore, because a transplanted tumor is composed of the cells of one animal proliferating in the body of another, while the problem to be solved in the cure of human cancer is to destroy a group of cells belonging to the individual himself. To these conditions the spontaneous new growths of mice exactly correspond while the transplanted tumors do not.

As a preliminary, test injections were made on normal mice to determine the toxicity of the "autolysin." The dose orally suggested for these animals by Dr. Beebe and Dr. Horowitz, who kindly supplied the "autolysin" used in this study, was from 3 to 5 minims (0.2 to 0.4 c.c.), which in a mouse weighing 30 gm. is equivalent to 7,200 minims (445 c.c.) in a 150 pound man. A period of five weeks in the life of a mouse is equivalent to 110 weeks in the life of a man, the expectation of life being for a mouse about two and one-half years and for a man fifty-five years. These facts should be borne in mind when comparisons are made with human cases, as they show that the doses administered to the mice were in some instances proportionately too large to be administered to men. It was found that the drug was apparently nontoxic for mice, even in intravenous doses of 1 c.c. (equivalent to 2,500 c.c. in a 150 pound man). Injections were made daily, so that no anaphylactic phenomena were observed. A local reaction was produced by subcutaneous injections, as was shown by a considerable thickening which remained for some days.

The chart shows the amount of the dosage in minims in each instance, the appended letter indicating whether the injection was made subcutaneously, intravenously, or into the substance of the tumor itself. The charting of the tumors was done by a person who does nothing but this work, and who was entirely unaware of the nature of the experiments; this avoids any personal bias in the measurements. The dimensions of the growths were determined by calipers, and their outlines plotted in a book of records on the day when treatment began and on every seventh day thereafter. Our experience with this method of charting has shown that a high degree of accuracy can be obtained by an experienced worker.

After the death of the animal, it was examined at necropsy, and microscopic examinations were made of the tumors and of the various organs. All of the tumors proved to be mammary adenocarcinomas, with the exception of No. 671, which was a mixed-cell sarcoma.

Clinically there was no evident change in the condition of the animals as the result of the treatment. Their weight fluctuated within about a gram, as is the case with untreated mice bearing spontaneous tumors. Enumeration of the red and white blood cells was not made. Twenty-one animals in all were treated over periods varying from one day to five weeks, with a total dosage in each case of from 3 to 123 minims (0.2 to 7.5 c.c.) of the "autolysin." The number of injections varies from one to thirty-four.

No gross changes were observed in the tumors which were not also found in neoplasms from untreated controls. The liver, kidney, spleen and other organs of the animal showed no gross alterations which were not observed in a series of 100 untreated spontaneous tumors.[3]

Microscopic examination of the site of injection showed a fairly extensive necrosis with dense leukocytic infiltration. The chlorophyl in the "autolysin" was not wholly absorbed; that which remained in the tissues incited a mesothelial reaction with the formation of giant cells similar to those growing about lipoid substances, oils or paraffin. Microscopic examination of the organs showed no lesions not met in the control animals.

Sections of the tumors studied microscopically showed that the tissues of the neoplasm were in an active state of growth, as indicated by the number of mitotic figures and the morphology of the cells. This growth was particularly well marked in Tumors 672 and 678, which were the longest under treatment. Even in Tumor 727, in which injections were made into the tumor itself, there remained a very wide margin of healthy, growing tumor cells. Areas of necrosis were not found more frequently than in untreated controls.

The accompanying chart shows the size of the tumor at different stages, the day of death of the animal, marked by a cross, the total dose, and the site of injection. It is evident that there was no demonstrable effect on the course of the tumor, all the animals dying ultimately and all the tumors showing distinct expansive growth. The number of metastases observed did not differ from that in a similar series of spontaneous tumors. It may be added here that about three years ago, in a series of unpublished experiments, thirty mice bearing transplanted tumors were treated with subcutaneous and intravenous injections of pure chlorophyl, but no therapeutic effect could be demonstrated.

CONCLUSION

"Autolysin," either in small or in very large doses, does not affect malignant tumors in mice.

3. Rohdenburg, G. L., and Bullock, F. D.: A Histological Study of the Internal Secretory Glands in Mice Bearing Spontaneous Tumors, Jour. Med. Research, 1915, xxxiii, 147.

THE EXTENT AND SIGNIFICANCE OF GONORRHEA IN A REFORMATORY FOR WOMEN

AND THE CONSIDERATION OF THE TREATMENT OF VENEREAL DISEASE AMONG DELINQUENTS *

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Being confronted with the extremely difficult problem of giving adequate treatment to 200 women infected with gonorrhea, out of a population of 350, in an institution equipped for education and industry rather than for purely medical work, it was thought worth while to study the situation in detail and ascertain the facts concerning the following points.

1. The prevalence of the disease among 500 delinquent women who have recently been in the institution and the nature and extent of the infection in each positive case.

2. The length of time the disease had existed without treatment and the time needed for the disappearance of the clinical symptoms.

3. The prevalence of the disease among women serving sentence for different types of offenses.

* From the Reformatory for Women.

4. The comparative prevalence of gonorrhea and syphilis among,
   a. Alcoholics.
   b. Prostitutes.
   c. Delinquent women in general.
   d. Mentally defective delinquents of the segregable type.

While this study shows the prevalence of the disease among delinquent women and the serious consequences to the women themselves, no effort has been made to estimate the far-reaching effects of their infectiousness in the community. The seriousness of the conditions found, however, has seemed sufficient reason for renewed interest in the situation quite as much from a community as from an institution standpoint.

1. *The prevalence of the disease and the nature and extent of each infection.*—Five hundred twenty-two women have been examined to discover the extent of the infection, with the results shown in Table 1.

TABLE 1.—EXTENT OF INFECTION IN 522 WOMEN

	Number	Per Cent.
Cases positive by clinical history and bacteriologic examination	370	70.8
Cases positive by clinical history alone	18	3.5
Cases positive by bacteriologic examination alone	7	1.4
Total number of positive cases	395	75.7

The 75.7 per cent. of positive cases may be considered a conservative estimate. It represents those cases which presented symptoms during the entrance examination and does not include cases which may have recovered, or which were latent at that time unless clinical symptoms returned later and were admitted by the patient.

The management of a gynecologic clinic of the size necessary for even routine treatment with this number of positive cases will be appreciated by those who are familiar with the difficulties of institution life, especially in a custodial institution in which a large number of women represent unstable types. For example, the average number of treatments given each week is 450, or 1,000 each month. As large as this looks on paper, it is still more appalling in actuality.

The detailed study of 268 positive cases shows *the duration of the disease and its course* to be as follows:

The greatest length of time which had elapsed since the initial infection was twenty-six years, while the average length of time was four years and five months. Seven patients had had the disease over twenty years, while only eleven patients came to us during the first three months of the infection. The average length of time of the first attack was three years and ten months, while the average length of time that clinical symptoms have been present in each case was four years and three months. It was found that in 82.7 per cent. of the cases there had been no cessation of clinical symptoms since the initial infection. Such a proportion as this is evidence that the infectiousness in the community has been continuous and also that there is little tendency to spontaneous cure by nature's methods alone.

In the 11.3 per cent. of cases showing recurrences or reinfections, some cases gave a history of as many as eight, while the average number was two. The longest interval in which the patient had been free from discharge was four years, while the average length of the interval was seven months.

The information which we have obtained may be inaccurate on account of the large proportion of mental defectives among the patients, the length of time which had elapsed in many cases since the initial infection, and the intentional minimizing or concealment of symptoms, in some cases, in order to obtain an earlier release. Notwithstanding this, the results of the study have been surprisingly consistent.

As will be seen from the accompanying table (Table 2), the 303 positive cases which it was possible to study in detail have been divided into six classes according to the length of time the disease had been present before treatment was begun, to discover, if possible, differences in the virulence and the nature of the disease at various periods.

The classification is as follows:

Class 1 had been infected from one to three months before being treated.
Class 2, from four to six months.
Class 3, from seven to eleven months.
Class 4, from one to five years.
Class 5, from six to nine years.
Class 6, ten years or longer.

The total results of this table show that 52 per cent. of the whole number had had the disease from one to five years without treatment; 19 per cent. had had it from six to nine years, and 14 per cent. had had it over ten years. Fifteen per cent., only, received treatment during the first year of the disease.

It will be seen at the outset how little realization the patients have had of the seriousness of the disease and how handicapped any method of treatment is which is begun at such a late date.

Regarding recurrences or reinfections, it will be noted that in Classes 1 and 2 (from one to six months)

TABLE 2.—SHOWING 303 CASES OF GONORRHEA AMONG DELINQUENT WOMEN, CLASSIFIED ACCORDING TO THE DURATION OF THE DISEASE BEFORE TREATMENT WAS BEGUN

Duration Before Treatment	Number of Cases with Recurrences		Cases Having Pain in Both Iliac Regions		Cases Having Pain in Either Iliac Region		Cases Having Pelvic Operation		Cases Needing Pelvic Operation		Total Number of Surgical Cases		Total of 303 Cases	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Class 1, 1-3 months	...	...	2	18	11	100	1	9	1	9	2	18	11	4
Class 2, 4-6 months	...	...	4	33	12	100	1	8	1	8	2	16	12	4
Class 3, 7-11 months	2	9	4	18	21	95	2	9	3	14	5	23	22	7
Class 4, 1-5 years	43	27	47	29	91	57	37	23	41	24	78	47	160	52
Class 5, 6-9 years	14	25	14	25	35	61	14	25	9	16	23	41	57	19
Class 6, 10 years +	5	12	12	29	37	93	6	15	8	20	14	35	41	14
Total	64	21	83	27	207	68	61	20	63	21	124	41	303	...

there was universally an uninterrupted course, a few recurrences appearing in Class 3 (from seven to eleven months) while the largest number, 27 per cent. and 25 per cent., respectively, was found in Classes 4 and 5 (groups having had the disease from one to five and from six to nine years). After this period their memory of recurrences did not appear so vivid and only 12 per cent. gave such a history.

Of the total number 68 per cent. have had pelvic inflammation in one iliac region, while 27 per cent. have had it on both sides. A nearly equal number of cases showed inflammation of the left and the right

TABLE 3.—HEART LESIONS IN 580 WOMEN

	No.	Per Cent.	Cardiac No.	Cases Per Cent.
Gonorrheics	440	75.9	123	27.9
Nongonorrheics	140	24.1	40	28.5
Totals	580	100	163	28.1

sides (left, 147 cases; right, 143 cases). Practically all in the first three classes gave a history of pelvic inflammation. This may have been diffuse pelvic inflammation rather than an inflammation of the tube or ovary. Nevertheless, about 9 per cent. of the first three classes had been operated on, while from 8 to 14 per cent. needed operation.

According to statistics gathered by 678 physicians,[1] 40 per cent. of all female gonorrheics suffer from pelvic symptoms. Other statistics, gathered by six different authors,[2] show that pelvic complications occur in 25 per cent. of the acute and in 50 per cent. of the chronic cases. The previous negligence of our patients, however, would easily account for their relatively larger number, namely 68 per cent.

Of the 303 cases, 20 per cent. have had an abdominal operation to relieve a pelvic condition due to this infection, while 21 per cent. more are suffering from a chronic condition which can be relieved only by surgical measures. Thus, out of the whole number there were 41 per cent. of surgical cases. It is interesting

TABLE 4.—COMPARISON OF COMPENSATION OF CARDIAC CONDITIONS

	Compensation		
	Good Per Cent.	Fair Per Cent.	Poor Per Cent.
Nongonorrheics	38.2	40.6	21.2
Gonorrheics	50.0	30.0	20.0

that the largest proportion of surgical cases (47 per cent.) was in Class 4 (one to five years). In Class 5 (six to nine years) the proportion was nearly as high (41 per cent.)—the number actually operated on being higher, while those needing it were fewer than in the preceding class. In Class 6 (ten years and over) 35 per cent. were surgical cases, 20 per cent. of which had already been operated on. Such figures serve to emphasize the virulence of the disease, in its later stages especially, when it has been neglected for so long a time.

1. Report of Committee of Seven, Med. News, Dec. 21, 1909.
2. Menge, F.: Handbuch der Geschlechtskrankheiten, Vienna, 1910.

A special study of 580 cases including 440 gonorrheics was made to ascertain the prevalence of heart lesions. No gross evidence, however, could be found of endocarditis which was caused by the disease, the proportion of heart lesions being practically the same in both classes. The results are found in Table 3.

That is, 440 cases of gonorrhea showed 27.9 per cent. of cardiac cases, while 140 cases without gonorrhea showed 28.5 per cent. of cardiac cases. As the cases without gonorrhea have, generally speaking, taken better care of themselves than the class that has had the disease, the fact that the latter class shows the larger percentage is the more significant.

A comparison of the compensation of the cardiac conditions was made in the two classes, with the results shown in Table 4.

Contrary to what might be expected, the percentage of the poorly compensated cases is higher among the first class than among the second.

Six of the heart cases, however, gave no history of other causes besides gonorrhea to which the condition could be attributed. Although this is a difficult diagnosis to prove, it has been sufficiently often demon-

TABLE 5.—BIRTH RATE AMONG GONORRHEIC AND NONGONORRHEIC WOMEN

	Gonorrheics		Nongonorrheics	
	No.	Per Cent.	No.	Per Cent.
No children	161	40.7	46	35.4
One child	140	35.4	19	14.6
Two children	42	10.6	14	10.8
Three children	22	5.5	9	6.9
Four children	17	4.3	11	8.5
Five or more children	14	3.5	31	23.8
Total	396		130	
Total number of children	439		365	
Average number of children	1.1		2.8	

strated at necropsy to leave no doubt as to the possibility of its existence, and is extra evidence of the organism's capacity for harm in the community.

The percentage of sterility which is caused by the disease seemed perhaps the most important subject for investigation. While the result, if positive, might be considered desirable among our women who are mentally or socially inefficient, still, the sterility which is caused indirectly by them in the community would doubtless be considered most undesirable. Here we might add that Neisser[3] states that 30 per cent. of all women who have gonorrhea have been infected by their husbands. Norris[4] says that, by sterilization and abortion, gonorrhea does more to depopulate the country than any other one cause; other authorities say that from 30 to 50 per cent. of all childless marriages are directly caused by gonorrhea.

The figures in Table 5 show the birth rate among 396 gonorrheics and 130 nongonorrheic women.

The average number of children for each nongonorrheic will be seen to be 2.8, while for each gonorrheic it is 1.1. The high percentage of families of five or more children among the nongonorrheics (23.8 per

3. Neisser, Quoted by Mullowney, J. J.: China Med. Jour., March, 1912.
4. Norris: Gonorrhoea in Women, W. B. Saunders Company, 1913, p. 127.

cent. as compared with 3.5 per cent. among the gonorrheics) is significant; also the 35.4 per cent. of "one child sterilities" as compared with 14.6 per cent. among the nongonorrheics.

The figures in Table 6 show the proportion of the children of 396 gonorrheics, born before and after infection.

Here it will be noticed that the number of children born before the infection is over twice the number

TABLE 6.—PROPORTION OF CHILDREN BORN BEFORE AND AFTER INFECTION

Birth Rate	Before Infection		After Infection	
	No.	Per Cent.	No.	Per Cent.
No children	231	58.3	326	82.4
One child	102	25.8	38	9.6
Two children	32	8.1	10	2.5
Three children	14	3.5	8	2.0
Four children	7	1.8	10	2.5
Five or more children	10	2.5	4	1.0
Total number of children	295		144	
Average number of children	0.7		0.4	

born after the infection, and that the average number before infection was 0.7, while after infection it was 0.4.

A further study was made of the effects of pelvic symptoms on the birth rate. The results are shown in Table 7.

These results would seem to signify, as might be expected, that uncomplicated gonorrhea affects the birth rate less than gonorrhea which involves the uterine adnexa, particularly if it calls for surgical interference. The cases in which operation was performed show the smallest average number of children (0.1) while the average of those patients needing operation is not much higher (0.2).

While it is realized that these results might be made more valuable with the consideration of much more detail than has been attempted here—such as comparative ages, proportion of married and single women, etc.—still it is believed that they serve to demonstrate in a general way that what is already known of the characteristics of the disease holds true in our present problem.

It is interesting that with such a large percentage of Neisser infections, during three years there has been no case of vulvovaginitis or urethritis among the thirty-five children and babies. There have been five acute eye infections and one case of gonorrheal iritis of hematogenous origin. It may be well to keep in mind, however, the fact that, estimated conservatively, from 30 to 50 per cent. of all blindness[5] is caused by this disease.

2. *The length of time the disease had existed without treatment and the time needed for the disappearance of the clinical symptoms.*—The following facts show how little treatment the disease has had in the community:

Of 378 cases giving a clinical history of gonorrhea, only four patients (1.0 per cent.) had received adequate medical treatment. Five patients (1.3 per cent.) had received some medical treatment besides taking douches, and 47.6 per cent. had taken douches but had had no medical advice. This means that 52.3 per cent. had had no treatment whatever, while 95.0 per cent. had had inadequate treatment.

When one knows that the majority of the 500 women have at some time been in prostitution, the lack of medical supervision among this class can readily be seen. The fact that douches were taken in over 47 per cent. of the cases seems neither to have prevented the disease nor to have had marked effect on the symptoms.

The question may be raised whether our class of women is representative of the so-called "high-grade" prostitute. Skilled investigators on the various vice commissions, however, report that the same conditions exist among all grades.

The treatment of the disease, after it has run such a long course, has been in our experience most unsatisfactory. In a class of women including so many psychopaths, too strenuous treatment had to be abandoned; hence we have found it impracticable to use anything as strong as silver nitrate solutions. The method which usually has been employed is thorough cleaning of the vagina and cervix and the application to the cervical canal and the vaginal walls of Churchill's tincture of iodin. This has been supplemented with a tampon of boroglycerin, ichthyol and glycerin or a saturated solution of picric acid. For months at a time the picric acid alone has been used on tampons with good results. It seems to have the desired effect of causing the mucous membrane of the vagina to slough off in a wholly painless way, apparently reaching the part of the mucosa in which the organisms are imbedded. In many cases where there is pelvic inflammation, frequent long, hot douching (every two hours) with a strong solution of potassium permanganate has been used, supplemented by the ice bag when necessary. Cases which do not yield to such medical treatment, with eventual cessation of all

TABLE 7.—EFFECTS OF PELVIC SYMPTOMS ON BIRTH RATE

	Cases Operated on Per Cent.	Cases Needing Operation Per Cent.	Cases with Iliac Pain, but Operation Unnecessary Per Cent.	Cases with No Iliac Pain Per Cent.
No children	90.3	92.0	77.5	67.4
One child	9.7	4.0	14.2	18.6
Two children	0	0	3.0	4.6
Three children	0	0	2.1	3.4
Four children	0	0	1.1	3.4
Five or more children	0	4.0	2.1	2.6
Average number of children	0.1	0.2	0.4	0.6

5. Norris: Gonorrhoea in Women, W. B. Saunders Company, 1913, p. 128.

pain, are considered operative cases and are treated surgically.

As the routine medical treatment of gonorrhea gives unsatisfactory results at best when the organism has already invaded the tissues to any extent, more active treatment of the uterine mucosa—such as curettage and iodinization—seems the only method that offers hope of satisfactory results. How practical such treatment would be in a penal institution, however, remains to be proved. Vaccine therapy, even in children, in whom it is supposed to give the best results, has not, in our experience,[6] produced the results that are claimed for it. This tends to make us rely the more on the actual treatment of the infected tissues themselves.

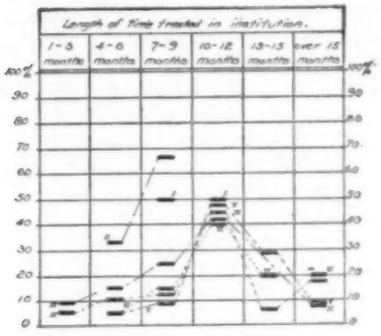

Chart 1.—Graphic representation of 111 cases of gonorrhea (Table 8), showing length of time treatment was necessary before clinical symptoms disappeared. Classes 1 to 6 refer to duration of disease before treatment was begun. Class 1, one to three months; Class 2, four to six months; Class 3, seven to eleven months; Class 4, one to five years; Class 5, six to nine years; Class 6, over ten years.

The 303 positive cases studied in detail (Table 2) are divided into two groups: (a) those in whom the clinical symptoms have disappeared and who, after being found negative bacteriologically, have been discharged from treatment, and (b) those who are still under treatment because of the persistence of clinical symptoms.

Table 8 shows 111 cases which have cleared up clinically classified according to the duration of the disease before treatment was begun. It shows how long in each class treatment was necessary before the clinical symptoms disappeared.

Classes 1 and 2 have very little value because of the small number included in each. It is interesting, however, that the total course of the disease in both of these classes, including periods both with and without treatment, appears to be about the same, the minimum being about eight months and the maximum about fifteen. From this one might judge that if the organism becomes well imbedded in the tissues (and no case comes to us until at least a month after the initial infection), the disease is bound to run a definite course even under fairly favorable treatment. In Class 3 in which the infection has lasted from seven to eleven months without treatment, 42 per cent. needed ten to twelve months' treatment, while 8 per cent. had to be treated longer than ten months. Here again the minimum time seems to correspond with that of the two previous classes, that is, about eight months.

In Classes 4, 5, and 6 the largest per cent. of cases required ten to twelve months' treatment. As the time during which the cases were untreated increases, the length of time needed to clear up clinical symptoms will be seen to increase proportionately, giving much larger percentages in the last columns. It will also be noted that in the last two classes (5 and 6) there were no cases in which the symptoms disappeared during the first three months. The seriousness of the problem in the institution is increased by the fact that 43 per cent. of 111 cases in which the clinical symptoms have disappeared required from ten to twelve months' treatment each.

Chart 1 shows graphically the data in Table 8.

Perhaps the most noticeable thing in this chart is the consistency of Classes 3 and 4, which show relatively larger percentages clearing up in the early months than do Classes 5 and 6. It also demonstrates the large number in each class requiring from ten to twelve months' treatment.

TABLE 8.—CLASSIFICATION OF 111 CASES OF GONORRHEA, SHOWING LENGTH OF TIME TREATMENT WAS NECESSARY BEFORE CLINICAL SYMPTOMS DISAPPEARED

Duration Before Treatment	Treated 1-3 Months		Treated 4-6 Months		Treated 7-9 Months		Treated 10-12 Months		Treated 13-15 Months		Treated Over 15 Months		Total of 111 Cases	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Class 1, 1-3 months	...	...	...	...	1	50	1	5	...	...	...	...	2	1
Class 2, 4-6 months	...	...	1	33	2	67	...	...	...	...	...	...	3	1
Class 3, 7-11 months	1	9	2	16	3	25	5	42	...	...	1	8	12	4
Class 4, 1-5 years	3	6	6	11	7	13	24	45	4	7	9	18	53	17
Class 5, 6-9 years	...	...	1	5	2	9	10	48	6	29	2	9	21	7
Class 6, 10 years +	...	...	1	5	3	15	8	40	4	20	4	20	20	7
Total number and percentage of 111 cases	4	4	11	10	18	16	48	43	14	13	16	14	111	100

Table 9 shows 192 cases at present under treatment. Classification A to F is made according to time treated.

Thus class A has been under treatment from one to three months.

Class B has been under treatment from four to six months.

Class C has been under treatment from seven to nine months

Class D has been under treatment from ten to twelve months.

Class E has been under treatment from thirteen to fifteen months.

Class F has been under treatment longer than fifteen months.

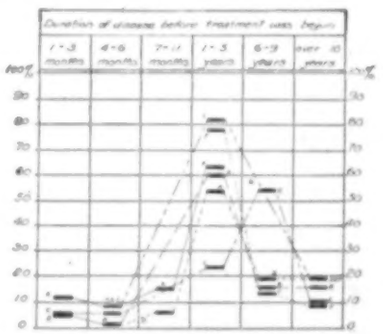

Chart 2.—Graphic representation of 192 cases of gonorrhea (Table 9), at present under treatment, showing length of time treated and duration of disease before treatment was begun. Classes A to F refer to length of time patients have been under treatment. Class A, one to three months; Class B, four to six months; Class C, seven to nine months; Class D, ten to twelve months; Class E, thirteen to fifteen months; Class F, over fifteen months.

6. Spaulding, E. R.: Vulvovaginitis in Children, Am. Jour. Dis. Child., March, 1913, p. 248.

It will be noted that 56 per cent. of the total number had the disease from one to five years before treatment was begun, and that 18 per cent. had it from six to nine years, while 11 per cent. had it over ten years.

Chart 2 shows the same percentages graphically.

Here again the same general consistency is seen. The classes which have been under treatment longest were latest in beginning treatment. Again the "one to five year" period appears to furnish the most resistant cases.

3. The prevalence of the disease among women serving sentences for different types of offenses.—In order to learn more of the significance of the disease socially, the 470 cases have been divided into the following three groups:

Class 1.—The first group includes all women serving a sentence for an offense which probably has a sex basis. This includes "Stubborn Child," "Vagrancy," "Lewdness," "Common Night Walker," "Fornication," "Keeping Disorderly House," etc. This group is 67.6 per cent. of the total number of cases.

Class 2.—The second group includes those who give a history of promiscuous sex relationship but are serving sentence for some other offense. This group is 19 per cent. of the total number.

Class 3.—The third group includes those who give no history of sex promiscuity and who are serving sentences for other offenses (13.7 per cent. of the total).

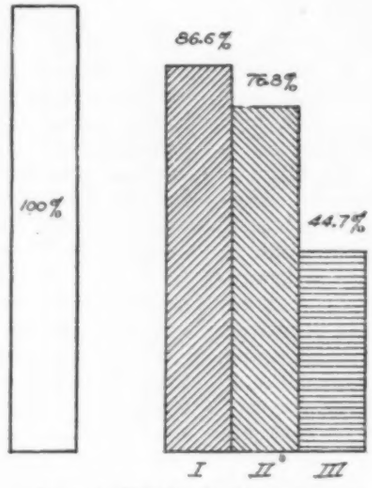

Chart 3.—Showing prevalence of gonorrhea among 500 delinquent women classified according to offense. Class 1 includes women whose offense has a probable sex basis (67.6 per cent. of 500). Class 2 includes women who give history of promiscuous sex relationship, but are serving sentences for some other offense (19 per cent. of 500). Class 3 includes women without such history or such offense (13.4 per cent. of 500).

The proportions of the positive cases in the three groups are shown in Table 10.

Chart 3 presents graphically the percentages in the three classes.

A detailed study of the forty-five cases, making up the 13.4 per cent. of negative cases in Class 1, may be of interest here.

Thirteen per cent. of the negative cases have a positive Wassermann reaction, even though they have escaped gonorrhea. Eight per cent. of the cases were committed on charge of "Stubborn Child," which, while it probably had a sex basis, may not have signified promiscuous relationships. Two per cent. of the cases came from country districts where venereal disease was not common. Of the remaining fifteen per cent., two cases are serving prostitution charges but evidently escaped both diseases, and the remaining cases, although arrested on a charge of sex basis, gave no history of promiscuousness.

This shows that if this group had included only prostitutes, the percentage of gonorrhea would have been higher. This has been already demonstrated in a previous report.[7] Among 243 women who could have been called prostitutes at some time in their lives over 98 per cent. had gonorrhea.

Class 2 shows 76.8 per cent. of positive cases. This is lower than Class 1, as would be expected, but nearly twice that of Class 3.

Class 3, which includes no women who have been known to live immorally, has 44.7 per cent. of gonorrheics. This might seem high were it not for the fact that Neisser[2] believes that 45 per cent. of all women have gonorrhea. Other authors, however, give much lower percentages among women in general, one giving 4.5 per cent.,[3] another 12 per cent.[4] Such figures make the per cent. of the last class seem high.

SUMMARY OF GONORRHEAL DATA

The following facts, which stand out as the result of our study of gonorrhea among delinquent women, seem important in considering the disease with reference to its relation to the community.

TABLE 9.—CLASSIFICATION OF 192 CASES OF GONORRHEA AT PRESENT UNDER TREATMENT, SHOWING LENGTH OF TIME TREATED AND DURATION OF DISEASE BEFORE TREATMENT WAS BEGUN

Time Under Treatment	Duration of Disease Before Treatment Was Begun												Total of 192 Cases	
	1-3 Months		4-6 Months		7-11 Months		1-5 Years		6-9 Years		10 Years +			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Class A, 1-3 months	5	12	4	9	7	16	27	63	...	...	...	...	43	22
Class B, 4-6 months	2	5	1	2	...	...	23	60	6	16	6	16	38	20
Class C, 7-9 months	2	6	2	6	...	...	8	23	19	54	4	11	35	18
Class D, 10-12 months	...	...	1	2	3	7	22	53	8	19	8	19	42	22
Class E, 13-15 months	...	...	1	9	...	...	9	82	...	...	1	9	11	6
Class F, 15 months +	...	...	...	...	...	...	18	78	3	13	2	9	23	12
Total number and percentage of 192 cases	9	5	9	5	10	5	107	56	36	18	21	11	192	100

Sixty-two per cent. of the negative cases are women who are serving sentences for adultery or cohabitation. Fifteen included in the 62 per cent. are foreigners who have been in this country but a short time. Most of these are good types of women whose lives in every other respect have been law-abiding. For various reasons their unions have not been legalized, but they have not been guilty of promiscuous immorality. The absence of disease in these cases is to be expected.

Prevalence.—Among delinquent women in general 75 per cent. at least have a gonorrheal infection. This represents only that proportion who show symptoms of the disease while under our supervision and often during a single examination. It is a conservative estimate of the number who at some time have had the disease. Among the prostitute class, however, the

7. Spaulding, E. R.: Mental and Physical Factors in Prostitution, Women's Med. Jour., July, 1914.

proportion of gonorrheics increases to over 98 per cent.

Important Complications.—1. Sixty-seven per cent. of the positive cases present symptoms of pelvic inflammation while 40 per cent. become surgical cases.

2. The birth rate appears to be diminished over one half on account of the disease, and 35 per cent. of the positive cases present "one-child sterilities."

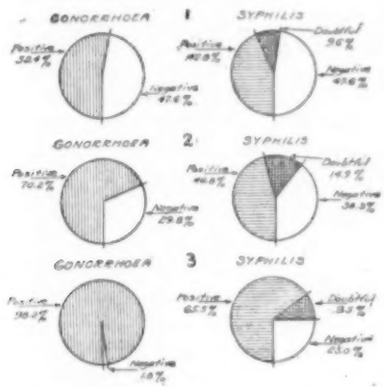

Chart 4.—Graphic representation of prevalence of venereal disease (1) among sixty-three women (12.5 per cent. of 500 consecutive cases) arrested for alcoholism only; (2) among ninety-four women (18.4 per cent. of 500 consecutive cases) arrested for alcoholism and other offenses; (3) among 243 women previously studied (60.8 per cent. of 400 consecutive cases), who at some time had been in prostitution.

3. Gonorrheal ophthalmia and endocarditis are among the serious complications.

Period of Infectiousness in the Community.— The majority of cases have apparently run an uninterrupted course sometimes for a period of twenty-five years, without having had any treatment. During that time the women have been a prolific source of infection in the community, causing indirectly the same complications of surgical conditions, sterility and blindness among the innocently infected which they themselves have had.

Prognosis.—The amount of treatment needed for the disappearance of clinical symptoms depends on the duration of the disease before treatment is begun. The average length of time that these cases were untreated was over four years. After the disease had lasted from four to six months without treatment, the majority of cases require from ten to twelve months' treatment before symptoms subside and the bacteriologic examination becomes negative (Chart 1 and Table 8). The majority of those whom it has been necessary to treat over one year had the disease from one to twenty years before treatment was begun (Chart 2 and Table 9). During the "one to five year" period, the vaginal discharge is most resistant to treatment, the tendency being to lessen in virulence after that period. The tendency to pelvic complications, however, seems to continue actively for at least ten years, and in many cases much longer.

TABLE 10.—CASES POSITIVE FOR GONORRHEA

Class	Total Per Cent. of Positive Cases	Positive Clinically and Bacteriologically Per Cent.	Positive Clinically Alone Per Cent.	Positive Bacteriologically Alone Per Cent.
1	86.6	74.2	10.9	1.5
2	76.8	65.5	7.2	4.2
3	44.7	31.4	11.8	1.5

4. *The comparative frequency of gonorrhea and syphilis among different types of delinquents.*

Chart 4 shows the prevalence of venereal disease among three classes of offenders.

1. Women arrested for alcoholism alone.
2. Women arrested for alcoholism and other offenses.
3. Women who have been in prostitution.

1. Among sixty-three women (12.5 per cent. of 500 consecutive cases) arrested for alcoholism only, we find gonorrhea 52.4 per cent. and syphilis 42.8 per cent., while 9.6 per cent. show a doubtful Wassermann reaction. These are high percentages for alcoholism alone and tend to substantiate the belief that alcoholism seldom remains the only offense.

2. Among ninety-four women (18.4 per cent. of 500 consecutive cases) who were arrested for alcoholism and for other offenses also, gonorrhea was found in 70.2 per cent. and syphilis in 46.8 per cent. with 14.9 per cent. showing a doubtful Wassermann reaction.

3. Among 243 prostitutes (60.8 per cent. of 400 consecutive cases) we find gonorrhea 98.2 per cent. and syphilis 65.5 per cent., with 9.5 per cent. showing a doubtful Wassermann reaction. These are appalling percentages from the standpoint of the community as well as from that of the individual, and make one realize the menace of the two diseases in their social aspect.

Chart 5 shows the problem of venereal disease as it relates to delinquent women in general.

Among 500 consecutive cases we find 75.7 per cent. with gonorrhea, 44.7 per cent. with syphilis, and 9.3 per cent. with a doubtful Wassermann reaction. At the New York Reformatory for Women,[8] Bedford Hills, New York, 73 per cent. of the women had gonorrhea and 51 per cent. had syphilis. These results, which represent the work of different laboratories on different groups of women, show surprisingly uniform percentages.

In 119 women (24 per cent. of 500), who on account of mental defect should be permanently segregated, we find gonorrhea 90.8 per cent. and syphilis 61.3 per cent. with 6.7 per cent. with doubtful Wassermann reactions.

CONCLUSIONS

Three methods present themselves as means of dealing with venereal disease among delinquents:

1. The medical problem of venereal disease is very closely associated, as has already been seen, with mental and social problems. Among the 24 per cent. of our women[9] who, after careful study, have been considered candidates for permanent segregation, syphilis was found to be about 61 per cent. while gonorrhea was over 90 per cent. These women have proved themselves to be irresponsible members of the community. They are all defective intellectually according to psychologic tests. They have, besides a bad social record, no home where

Chart 5.—Graphic representation of prevalence of venereal diseases (1) among 500 delinquent women (consecutive cases); (2) among 119 cases (24 per cent. of the 500 cases), who on account of mental defect should be permanently segregated.

8. Davis, K. B.: Proceedings of the Annual Congress of the American Prison Association, Indianapolis, 1913.

9. Spaulding, E. R.: Our Criminal Problem from the Standpoint of Classification and Segregation, Boston Med. and Surg. Jour., Oct. 7, 1915.

they can be given suitable supervision. If we provide for their segregation, we not only remove their immoral influence from society and prevent the continuance of similar types in the next generation, but we remove just so much actual disease from the community.

The argument may be brought forward, particularly by the layman, that most of our women, especially in our mill towns, associate only with their own type, which does not endanger society as a whole. Even if this were true, they would tend to infect individuals who, if crippled mentally or physically by disease, would become public charges and an additional expense to the taxpayer. This would be an additional argument, economically, for the permanent segregation of mental defectives, especially among delinquents.

Before such segregation is possible, however, greater facilities must be furnished by the state for their care, and the judges, through whom the commitments must be made, must be shown the need of their segregation.

2. The second method of combating the disease would be the early diagnosis and the intensive treatment of all persons who pass through the courts and are detained in public institutions on any charge.

The ideal treatment of prisoners according to our most advanced criminologists is the mental, physical and social examination of all persons before they are seen by the judge. When such information is obtained before trial, the fact that the prisoner needs treatment for diseases so dangerous to public welfare should influence the judge in his decision, especially when the offense of the prisoner tends to spread such disease. As a help toward this, a law[10] is already in existence in Massachusetts which provides for the treatment of syphilitics while the disease is in a communicable form.

As over 25,000 persons were sentenced to penal institutions during the year ending September 30, 1914, it would seem possible, by suitable treatment, to accomplish much under the present régime. This should include the universal application of the Wassermann test and the bacteriologic tests for gonorrhea, with insistent treatment for the two diseases while in the institution. The indeterminate sentence makes it possible usually to hold gonorrheics until they have cleared up clinically, while the law mentioned above enables us to hold syphilitics as long as it seems necessary.

3. The third and most important method would be the provision of hospitals throughout the country for the treatment of such persons, if necessary, free of charge, before they become our patients. Even in the time of Henry VIII there were six hospitals in London devoted to the treatment of venereal patients. Even though, in this present generation, hospitals for the exclusive treatment of venereal disease are not considered feasible on account of the stigma which would be attached to them, there seems to be no argument against special wards in all hospitals where such treatment could be given.

While we do not recommend a segregated district and attempted medical supervision of prostitutes, we do believe in limitless opportunity for treatment in the place of the at present existing conditions. Fortunately, in Massachusetts the hospitals are beginning to admit patients with these two diseases.[11]

10. Revised Laws of Massachusetts, 1902, i, Chap. 75, Sec. 48.
11. Post, Abner: Syphilis, Boston Med. and Surg. Jour., July 29, 1915, p. 161.

The three methods of treatment which have just been described lie in the province of the physician. Although it is outwardly a social problem, and calls for legislation and much social effort, it is fundamentally a medical one and will only progress as the physician appreciates his responsibility and enlists his interest and influence.

THE INCIDENCE OF SYPHILIS AMONG JUVENILE DELINQUENTS

ITS RELATION TO MENTAL STATUS *

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The Wassermann tests of serum obtained from the Boys' Industrial School and the Girls' Industrial Home, in Ohio, herein reported, were made by Dr. Walter McKay, assistant physician of the Institution for the Feeble Minded, Columbus, Ohio, and the specimens of blood were collected by Dr. Walter A. Noble of the Bureau of Juvenile Research. Dr. Noble also made the physical examinations reported. To the careful work of these gentlemen is due the credit for the work here presented. The technic of the Wassermann tests, as executed by Dr. McKay, is that "described and recommended by Captain Charles F. Craig, of the U. S. Army Medical Corps, Bulletin 3, published by the surgeon general," with one change. Dr. McKay used sheep's blood amboceptor and corpuscles. His method of reading the reaction is the one outlined by Dr. W. T. Mefford of the Wassermann Laboratory, Chicago, calling the strongest positive reaction four plus (+ + + +), and the weakest positive reaction one plus (+), while the three plus (+ + +) and two plus (+ +) reactions are judged by the appropriate dilutions. Throughout the work Dr. McKay used controls as described by Dr. Mefford.

TABLE 1.—BOYS AND GIRLS EXAMINED

	Boys	Girls	Total
Total number tested	147	218	365
Number of positive and doubtful Wassermanns	34	42	76
Percentage of positive and doubtful Wassermann reactions	23.1	19.2	20.8

Table 1 exhibits the numbers of boys and girls whose serums were examined, the numbers yielding positive and doubtful results and the percental relations of these numbers to the total numbers examined. There was no selection of these cases. They were taken, as nearly as could be, in groups as admitted to the institutions.

Table 2 exhibits the distribution of cases according to numbers of tests made on each individual, and the character and strength of the reaction. Nine of the boys were tested twice. Of the girls, fourteen were tested but once, twenty were tested twice, and eight were tested three times.

In some cases the first negative reaction was suspected of being faulty, on account of technic, and later examination proved this to be true. For example, it may be noted that two cases yielding a negative reaction in the first test, on the second testing yielded a four plus reaction. Likewise, two cases, first reported

* From the Bureau of Juvenile Research, Columbus, Ohio.

negative, yielded three plus reactions on both second and third testings. In general, repetitions were made for removing all doubt in already positive cases.

In regard to the character of the reaction, it is interesting to note the relatively large numbers of subjects yielding four plus and three plus reactions. Out of the total of seventy-six positive or doubtful reactions obtained, we find forty of these to be either four plus or three plus reactions.

Table 3 exhibits the distribution of these seventy-six boys and girls with respect to chronological ages. The age is reckoned in each case as being of the nearest birthday. For example, a boy who is 12 years and 5 months of age is reckoned as 12 years old. On passing 12 years and 6 months he is reckoned as 13 years of age, and is considered 13 years of age until he reaches 13 years and 6 months, so that under each year of age we may have individuals varying in age from six months previous to that year to the six months after that year. The largest number of boys is found at 15 years. The largest number of girls is found at 16 and 17 years, there being twelve individuals in each one of these age groups. The average age of the

TABLE 2.—CASES ACCORDING TO NUMBER OF TESTS

	Once Tested		Twice Tested			Three Times Tested			
	Reaction	No. of Cases	Reaction		Cases No. of	Reaction			No. of Cases
Boys	++++	6	++++	++++	3				
	+++	14	++	++	3				
	++	5	+	+	2				
	.....	..	++	—	1				
Girls	+++	2	++++	++++	2	++++	++++	++++	1
	++	7	++++	+++	2	++++	+++	+	1
	+	5	++++	++	1	++++	++	++	1
	.....	..	+++	+++	1	+++	+	+	2
	.....	..	++	++	6	++	+	+	1
	.....	..	++	+	1	—	+++	+++	2
	.....	..	—	++++	2				
	.....	..	—	++	2				
	.....	..	.....	+	3				

thirty-four boys is 14 years and 11 months. The average age of the forty-two girls is 15 years and 11½ months.

In regard to the social status of these individuals, they are all cases committed to reform schools because of delinquencies of various sorts.

Table 4 presents a summary of the complaints and offenses mentioned in the commitment papers of the boys and girls yielding the positive and doubtful Wasserman reactions. Some commitment papers mention more than one offense; hence the sum of offenses more than equals the total number of boys and girls. With boys the leading offense is that of larceny—seventeen cases. With girls, on the other hand, sexual offenses lead with a total of seventeen. To these should probably be added four cases of immorality. This usually means sexual immorality. Seven boys and ten girls are set down as incorrigible. It is safe to assume that a large percentage of these ten girls are immoral. The distribution of offenses in this group of delinquents yielding positive Wassermann reactions is not, in any wise, different from the distribution of these offenses among the total number of admissions to these reform schools. The same may be said concerning the ages. The ages indicated in Table 3 are typical of the total number of admissions to these reform schools.

It is required by law that every person committed to a reform school shall have been examined by a physician, and be accompanied by a medical certificate. An examination of the medical certificates of thirty-three of the girls yielding positive or doubtful Wassermann reactions yielded the data exhibited by Table 5. We find thirteen of these girls certified as being in good health. A physician's O. K. is put on each one of these thirteen cases. In four cases vision is certified as impaired; in ten cases it is stated that there is a

TABLE 3.—AGES IN POSITIVE OR DOUBTFUL REACTIONS

	Year of Age						
	12	13	14	15	16	17	18
Boys	..	5	5	12	6	4	1
Girls	1	..	5	8	12	12	4

"vaginal discharge," or she "has gonorrhea," or "has had gonorrhea;" in four cases a question is raised in respect to venereal disease; in one the girl is "said to have had a profuse eruption on limbs;" and one has been "treated for syphilis in a hospital."

Thus, out of thirty-three cases in which the Wassermann tests yielded definite evidence of syphilitic infection, only one girl is known to have had syphilis, one is thought to have had symptoms of the primary stage of syphilis, and in four cases there is a question of venereal disorder; but this question seems to have gravitated entirely in the direction of infection by the gonococcus. This is certainly striking evidence both of the value of the Wassermann reaction in the study of such institution cases, and of the imperative need for its use. This value and this need are both in the service of the therapeutics of the individual and for social protection. In no institution case should the person be allowed to go at large until the positive reaction has been changed to a negative.

Even less indication of syphilitic infection is obtained in the subjects' accounts of their previous illnesses. This, of course, tallies with general hospital experience, especially in the cases of females. In a large percentage of cases there can be no doubt that the female

TABLE 4.—OFFENSES OF BOYS AND GIRLS YIELDING POSITIVE OR DOUBTFUL WASSERMANN REACTIONS

Offenses	No. of Boys	No. of Girls
Robbery or burglary	3	..
Larceny; stealing; theft	17	5
Picking pocket	1	..
Delinquent or juvenile disorderly person	3	7
Incorrigible	7	10
Truant	3	..
Assault	1	..
Immorality or immoral acts	1	4
Sexual offender	..	17
Attempt to rape	1	..

patient is and remains entirely unaware of the nature of the syphilitic infection. The primary stage of syphilis, in many cases, passes unrecognized, and in other cases, while recognized by the profession, the patient remains in ignorance of it. In these accounts of their own illnesses the patient was asked in a general way to name her previous illnesses. No specific question in regard to venereal disorder was asked. Under these circumstances it is hardly to be expected that any hint would be obtained of syphilitic infection. One of the forty-two girls acknowledged having had treatment for gonorrhea. No other patient mentioned any venereal

disorder or referred to any disorder of the mucous membrane or the skin. The ailments mentioned are measles, diphtheria, scarlet fever and other childhood disorders, smallpox, pneumonia, typhoid fever, malaria and spinal meningitis.

In regard to physical examinations of thirty of these forty-two girls, it is interesting to note the negative evidence in regard to congenital syphilis. No case exhibits Hutchinson's teeth or saddle nose. In regard to reflexes, not one of the thirty cases shows any disturbance of pupillary reflexes. Pupils are equal and react normally to light and accommodation in every case. The examination of deep reflexes does show remarkable anomalies. Only three of the thirty cases show both triceps and patellar reflexes normal. Four cases show normal triceps and exaggerated patellars. Two cases show normal triceps and absent patellars. Two cases show exaggerated triceps and normal patellars. One case shows absence of triceps and normal patellars. One case shows exaggerated triceps and diminished patellars. One case shows diminished triceps and exaggerated patellars. Three cases show both triceps and patellars greatly exaggerated. Five other cases show both triceps and patellars exaggerated. In six cases there is shown an absence of both patellars and triceps. Presenting the facts more *en masse*, as in Table 6, we find exaggerated triceps and patellars in over 40 per cent. of the cases examined, and absent patellars and reflexes in about 28 per cent. of the cases examined, while about the same percentage present normal triceps and patellar reflexes. In only three cases were ophthalmoscopic examinations made, and two of these were judged cases of early optic atrophy.

TABLE 5.—PHYSICAL CONDITION OF THIRTY-THREE GIRLS YIELDING POSITIVE OR DOUBTFUL WASSERMANN REACTIONS

Physical Condition	No. of Cases
Physical condition certified "all right"	13
"Vision not perfect," or "needs glasses"	4
"Has vaginal discharge," or "has gonorrhea," or "has had gonorrhea"	10
"A question of venereal disease"	4
"Said to have had profuse eruption on limbs"	1
"Treated for syphilis in hospital"	1

It seems from these facts concerning the ages of the girls in question, and the complaints on which they were sent to the reform schools, to be highly probable that many of these cases of syphilitic infection are acquired. The evidence has not excluded congenital syphilis in any single case, but it opens the possibility for individual acquirement of the infection. These girls have exposed themselves to such infection. Every one is probably guilty of sexual immorality on repeated occasions, and with various individuals. As further evidence making for the probability of individual infection, we may cite the cases of two girls not comprised in this report, both of whom exhibited mucous membrane lesions to such an extent that the designation "mucous patch" was no longer applicable. More than half of the mucous membrane of the mouth and visible pharynx was involved. An exceedingly uncomfortable looking ulceration prevailed in this mucous membrane. In one of these cases a strong positive reaction was obtained. In the other a negative reaction was obtained in January when the ulcerated mucous membrane had been cleared up by treatment since the previous October. One of these girls belongs to a well known family of high grade feebleminded persons, and while we cannot report Wassermann tests on other members of the family, we have reason to doubt that any of them, comprising a large family of siblings of this case, have recently had any such exhibition of primary syphilis as that of the case in question. This girl, furthermore, is known to have exposed herself. It is impossible to charge the feeblemindedness in this family to syphilitic infection until further evidence is forthcoming.

We have under investigation a girl of 16, with a mental development of about 8 years, and her father, a man of 47 years with a mentality of 9, confined in the state penitentiary for incest with this daughter. These individuals belong to large fraternities of feebleminded persons with criminal tendencies, and their ancestors, so far as traceable, have been found to be low in mentality — shiftless mountain people, and costly to the state and community because of their criminal tendencies. Both of these subjects yield negative Wassermann reactions in their serums. With a prevalence of the tendency of sexual immorality and the low grade of mentality, it is certainly surprising to find both of these individuals free from syphilitic infection. Such, however, is the case. The possibility of immunity from syphilis must have consideration in these cases. This family certainly suggests the need of caution in attributing etiologic significance to syphilis in cases of feeblemindedness.

As further evidence of the need of caution in considering any of these cases congenital, we may cite the cases of two pairs of sisters, coming at different times to the institution, the sisters in each pair coming at the same time. In each of these cases one sister yielded a positive Wassermann reaction, and the other a negative reaction. Of course, such facts are not incompatible with congenital syphilis. Many cases of younger children, in which individual infection was very highly improbable, have yielded similar results, one member of the family yielding a positive reaction, and other members being negative.

One of the girls comprised within this list of positive reactions, yielding on three different examinations a four plus, a one plus and a three plus, has a father in another institution. His blood yields a negative reaction, according to Dr. Kramer. He is in the penitentiary for manslaughter, accused of poisoning his wife. The girl is 17 years of age, and is committed as incorrigible, a sexual offender and alcoholic. Until evidence is forthcoming that the deceased mother was syphilitic, it is reasonable to assume that this girl has contracted syphilis by her own loose living.

TABLE 6.—REFLEXES IN GIRLS YIELDING POSITIVE OR DOUBTFUL WASSERMANN REACTIONS

	Normal	Exaggerated	Absent
Triceps reflexes	10	12	8
Patellar reflexes	7	13	9

Another case of an 18-year-old girl yielding a four plus Wassermann, and being normal in her intelligence, though very unstable in her moral organization, seems to point the way to her infection. Her account of her fraternity indicates that she is the youngest of ten living children. Most of the others are married and have children. All seem to be straight except her next older

sister, who, she says, has pursued the same methods as herself. As for herself, she acknowledges having married about two years ago in a southern state, having left her husband in a few weeks, and having lived at different times with eight or nine different men. This case in itself is not evidence for individual infection, but the family should not have the burden of syphilis laid on it until more is known about the case. She, herself, has taken scores of chances of contracting syphilis.

In regard to the mental status of the individuals herein reported as yielding positive Wassermann reactions, Table 7 shows the distribution into classes, the definitely defective, the subnormal, and those showing no intelligence defect. This distribution has been made as the result of the combined point scale and year scale examinations. The distribution follows pretty closely that of the general populations of these two institutions into these three groups. Roughly, they are about one third in each group. There is a preponderance of defective girls in this group of forty-two, sixteen being 38 per cent. of the total group. These figures do not warrant one in drawing any inference as to the cause of feeblemindedness being syphilitic infection. The close correspondence of this distribution, as shown in Table 7, to that of all the persons coming to these institutions, seems to exclude congenital syphilis as a cause or associated cause of

TABLE 7.—MENTAL STATUS IN CASES YIELDING POSITIVE WASSERMANN REACTIONS

	Defective	Subnormal	No Intelligence Defect
Boys	12	12	10
Girls	16	14	12

feeblemindedness. I do not mean to put this forth as a piece of logic, but rather to indicate that the question must be left an open one, and that the burden of proof is with those who would prove congenital syphilis a cause of feeblemindedness. Such delinquents are, no doubt, delinquents because they are defective. They may be syphilitic because they are defective, their low intelligence and easy influenceability making them easy prey to infected persons. On the other hand, however, they may be defective because the family stock has been syphilitic. This may even be a latent syphilis which cannot be found by examining the serum. Some of these cases yielding positive serums are very likely cases of congenital origin. Many others of our feebleminded delinquents may be feebleminded because of impaired germ plasm in their parents, being permanently lamed and handicapped because of parental syphilis, and yet not infected themselves. They have inherited the results without inheriting the organism itself. This, however, may remain in the speculative stage until more evidence is forthcoming.

One of the important lines of evidence needed is that to be gathered from the exhaustive clinical studies and family histories of families having members, some of whom are feebleminded, some psychopathic, and some syphilitic. Cooperative work of this sort between clinicians, laboratory workers and field workers, in institution cases, should clear up some of these mooted questions

For the present, we have undoubted evidence of syphilitic infection among delinquent boys and girls committed to these reform schools in about one fifth of the cases examined, as a matter of routine, on or soon after admission. This percentage is difficult to compare with the percentage among the population at large, because data so far collected are either from institutions, or from practice in which patients come because of clinical symptoms. That it is an extraordinary percentage seems to be beyond question, however, for the percentage of positive and doubtful Wassermanns obtained in the year 1913, as the result of routine examinations in about 1,600 cases, including practically all the admissions to the Boston Psychopathic Hospital, was 14.7 per cent. These 1,600 cases embrace practically all of the acute mental disorders occurring in the metropolitan district about Boston, comprising about one third of the population of the state of Massachusetts. Such cases would naturally comprise all mental disorders due to syphilitic infection, which we know to be a large percentage of freshly occurring cases. It would comprise all new cases of general paralysis of the insane coming for state care. The percentage of positive Wassermann reactions in such a hospital population one would reasonably expect to be far beyond the percentage of positive reactions in the community at large. This percentage, then, of over 20 per cent. found in 365 cases examined in reform schools in Ohio seems to indicate a large preponderance of syphilitic infection among these juvenile delinquents — much larger than in the community at large.

In conclusion, therefore, from the evidence at hand, it seems impossible to charge congenital syphilis as a cause of the mental impairment in these cases of delinquents.

SUMMARY

1. No larger percentage of those yielding positive Wassermann reactions are defective in intelligence than in the general population of these reform schools.

2. There is complete absence of evidence of the signs of congenital syphilis in thirty positive cases examined.

3. Cases of positive Wassermanns, with sister or father yielding a negative Wassermann, point to individual infection.

4. In a feebleminded family, of criminal tendency, and especially sexual offenders, father and daughter yield negative serums.

5. The court charges against the girls in a majority of the cases, and the extent of sexual immorality, allow of abundant opportunity for individual infection.

6. The absence of evidence of syphilis in personal history and in the medical certificates can be given no weight either for or against individual infection.

7. The absence or exaggeration of deep reflexes without difference in the two sides of the body, and without disturbance of the light reflex of the pupil, indicates that if these signs are due to syphilis of the nervous system, they are early signs, and so far tend toward evidence for individual infection.

Automobile Fatalities.—The *Weekly Bulletin* of the Newark Department of Health gives a tabulation of deaths from automobile accidents. From 1909 to 1914 there were deaths as follows: Buffalo, 125; Chicago, 493; New York City, 1,120; Newark, 54; Pittsburgh, 140; Providence, 80; St. Louis, 116; San Francisco, 116; Washington, 84.

FULLERS' EARTH IN THE INTESTINAL DISORDERS OF INFANTS*

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Of late the use of kaolin has been recommended for the treatment of a variety of disorders.[1] It has been reported to have therapeutic value in enteritis, in furunculosis and in vaginitis, and, more recently, has been recommended for application to the nose and throat in infections of these organs.[2]

The underlying basis of this type of therapy—the use of nonabsorbable substances—is not thoroughly understood; some believe that its value is due to the inhibition of the growth of bacteria, and others that, because of its adsorptive property, it possesses antitoxic value. Influenced by these favorable reports I prescribed kaolin in the intestinal disorders of infants. For this purpose it was either mixed with the milk or was given by the teaspoon. The results in either case were disappointing. In normal infants, kaolin occasioned only a slight degree of constipation, and in those manifesting diarrhea it was found not to reduce the number of stools materially. Dissatisfied with the results of kaolin I turned to the use of fullers' earth. Although these two substances are considered synonymous in the United States Dispensatory and the National Dispensatory they are by no means alike, either in their composition or physiologic action. It is difficult to give a standard analysis of fullers' earth, as it differs considerably, depending on the location in which it is obtained. However, the following analysis of this earth, as well as that of kaolin may be regarded as typical:

	SiO_2	Al_2O_3	Fe_2O_3	CaO	MgO	Alkalies	Water
Kaolin	45.40	37.34	1.92	0.44	0.20	0.52	14.0
Fullers' earth..	57.26	18.33	1.87	2.58	1.06	....	18.4

It will be seen that there is a considerable difference between the two substances, the main distinction being that kaolin has a far greater amount of hydrous aluminum silicate, and fullers' earth considerably more calcium. They are different, however, not only in their chemical composition, but also in their physical properties. One of the most noteworthy characteristics of these earths is their power to absorb various alkaloids. In view of this fact, they have been recommended[3] as antidotes in the case of various alkaloidal poisonings. In this respect fullers' earth stands preeminent, as it is characterized by its porosity and, as shown by Parsons[4] "carries an unusually large proportion of colloids of high adsorptive power." In this quality various specimens of earth are by no means uniform. This adsorptive property can most readily be tested by determining the quantity of earth required to remove from solution a given amount of dye. In making tests of this kind, we followed the procedure recently recommended by Fantus,[3] in which a 1 per cent. malachite green and 0.25 per cent. morphin solution are employed. It seems hardly necessary in a paper presenting a clinical view to give the data of these various examinations. The results may be summarized by the statement that fullers' earth possessed a greater degree of adsorptive power than kaolin, but that among the six specimens of earth which were obtained from various parts of the United States, there were marked individual variations.

It was realized, however, that the value of these earths in the intestinal tract cannot be determined by their ability to adsorb dyestuffs, but must be learned by direct clinical observation and experience. Accordingly, fullers' earth was given to a considerable number of normal infants, in order to test its physiologic effect; to this end, 1 ounce of the earth was given in the day's feeding. This mixture was taken without difficulty by the infants, and was found to occasion no disorder whatsoever. Its sole effect, which may be stated to have been constant, was that it induced constipation. The stools became firm, dry and formed; indeed, in some cases the constipation became so marked that the addition of the earth had to be discontinued. The preparation was then given to infants suffering from indigestion, as manifested by diarrhea, accompanied in some instances by vomiting. In these cases, the earth was either added to the food, consisting of the diluted milk, or it was given by teaspoon every hour or two. Either or both of these methods can be used. No difficulty was experienced in giving the powder suspended in a little water, especially when it was sweetened by means of saccharin (two-fifths grain to 1 ounce of fullers' earth). In severe cases of enteritis, no food whatsoever was given, but merely teaspoonful doses of this preparation as often as every half hour. In some cases it was fed through the stomach tube — 1 or 2 tablespoons being introduced in this way three times a day.[5]

As in every type of therapy, success is not invariable. We may state, however, that this therapeutic agent has had a greater effect on inhibiting the diarrhea than has bismuth, chalk mixture or other drugs which are commonly used for this purpose. In some cases it has also seemed to exert a sedative effect on the stomach, as judged by the fact that vomiting ceased in the course of this treatment. In no instance were any harmful effects noted, although the earth was given to patients suffering not only from enteritis, but also from pneumonia and nephritis.

When we turn to consider the modus operandi of this treatment, we tread on ground that is by no means firm. We know that this earth, as Fantus has shown, is "capable of lessening in the human the absorption of substances that are readily absorbed." It is therefore possible that this property is of value in its therapeutic application — that it adsorbs toxins and bacteria, which would otherwise be harmful for the body. In this connection we may add that experiments carrried out with solutions of dye showed that casein likewise possesses adsorptive properties to a considerable extent. This naturally raises the question whether casein does not exert an influence on the intestinal tract and its contents owing to its physical as well as to its chemical composition, and whether we are not giving too little thought and credit to this point of view in our dietetic treatment of diseases. It may well be, for example, that part of the therapeutic success which is so regularly obtained by the use of albumin milk (casein or

* From the Research Laboratory, Department of Health, New York.

1. Hektoen, L., and Rappaport, B.: The Use of Kaolin to Remove Bacteria from the Throat and Nose, THE JOURNAL A. M. A., June 12, 1915, p. 1985.

2. In three diphtheria carriers in which kaolin was applied to the pharynx in order to rid it of bacilli, it seemed to exert no effect, although it was used many times a day for several days.

3. Fantus, Bernard: Fullers' Earth: Its Adsorptive Power, and Its Antidotal Value for Alkaloids, THE JOURNAL A. M. A., May 29, 1915, p. 1838.

4. Parsons, C. L.: Mineral Technology, Bull. 71, Bureau of Mines, Dept. of the Interior, October, 1913.

5. Lloyd's reagent, a preparation composed of very fine particles of fullers' earth, was given to a number of infants, but did not seem to possess any advantages over the inexpensive common specimens of fullers' earth.

protein milk), is the result, not only of the antifermentative action of the casein, but of its adsorptive properties as well. However this may prove to be, I wish to point out the difference in therapeutic efficiency between kaolin and fullers' earth, and also to recommend the use of the latter in the gastro-intestinal disorders which are so common in early infancy.

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THE TREATMENT OF INTUSSUSCEPTION

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The treatment of intussusception is that of acute bowel obstruction, and therefore always surgical. At present, laboratory research has established two facts of considerable importance, which make clear the necessity for early operative intervention. These facts are, first, that death is due to the entrance into the body of a certain toxin or toxins, the exact origin of which, whether chemical or bacterial, has not been definitely established. Some believe the toxin exists under normal conditions in the intestine, while others believe it to be formed after the obstruction. It does not matter, if this point is remembered, that "every case of obstruction is absorbing a poison, which if too long continued will kill, in spite of any treatment yet devised."

Second, this toxin can be absorbed only when the epithelial cells of the mucosa are damaged, as they are by the mechanical closure of the bowel, and the resulting distention. The greater the amount of damage to the epithelial cells, the more toxin is absorbed, and the more danger to the patient. Admitting these statements, who of us will undertake to say how much toxin is being absorbed in a given case, or how much poison the patient can stand, any more than one would try to prophesy the outcome of a case of appendicitis, treated medically? Early operation will save practically every patient. Late operations are hopeless, for the reasons just stated.

The following technic is the one which I have used in seven cases. First let us take the simple case seen during the first twelve hours, usually a baby or a young child. As soon as the diagnosis is made, all fluids by mouth are withheld, the abdomen is painted one coat of tincture of iodin U. S. P., and a hypodermic of morphin and atropin given in appropriate dose.

The operating room is then fully prepared, instruments laid out, needles threaded, subcuticular salt solution made ready, and provision made for every emergency which may arise, so that no time will be lost. The surgeon, assistants and nurses are scrubbed and masked, and gloves and gowns donned before the anesthetic is started. Just before anesthesia, the stomach is washed out if frequent vomiting is taking place. The anesthetic, drop ether, preceded by a few drops of oil of orange for the psychic effect, has been the one used.

As soon as the patient is etherized, subcutaneous salt solution is started, the abdomen repainted with tincture of iodin, sheets placed, and the incision made, usually a high median, and unless good relaxation is secured easily, the muscle is infiltrated with novocain. The intestines are not allowed to escape from the abdominal cavity if they can be prevented. Usually, however, this is not wholly possible, and as fast as they appear they are wrapped in gauze moistened in hot salt solution. The intussusception is found and delivered. If much bloody serum is encountered in the peritoneal cavity, it indicates a marked degree of interference with the blood supply. The reduction is accomplished by gently squeezing the intussusception from below, and at the same time making gentle traction on the intestine above. After reduction, if of the ileocecal type, and the appendix is quite dark and congested, it is removed, and at the same time the cause of the intussusception sought for. In babies and very young children, abnormalities of the cecum and appendix or enlarged lymph nodes at the ileocecal junction have been mentioned by writers as important etiologic factors, and must be treated accordingly. The combination of all three was present in my last case. In the adult, intestinal adenoma, polyp or Meckel's diverticulum are too frequently present to be ignored, and careful search must be instituted if a recurrence is to be avoided. The intestine is then returned to the abdomen and the wound closed in the usual manner. Recurrence is extremely unlikely; should this be feared, however, the ileum and cecum can be tacked to the peritoneum by a couple of fine chromic gut sutures.

Drainage of the upper loop may at times be necessary to relieve distention, which aids in limiting the absorption of toxin. However, for the reason stated above, no fear need be felt in allowing the toxic contents of the upper bowel to flow on down over normal mucous membrane.

After the operation, the salt solution is continued, or, in the case of a small baby, given at intervals by an antitoxin syringe, until the patient's condition is satisfactory. This treatment may be necessary for several days. Fisher's solution, consisting of sodium carbonate (crystalline) 10 gm., sodium chlorid 14 gm. and water to make 1,000 c.c., is administered by rectum, by the Murphy drip, to supply fluid and neutralize starvation acidosis. As soon as possible, fluid is given by the mouth, and nourishment started, especially in a baby. Morphin or its derivatives is used in sufficient doses to quiet the patient. If vomiting continues, lavage of the stomach and colon at frequent intervals is carried out, and large amounts of fluids given subcutaneously and by rectum. Draper has found that the feeding of epithelial cells scraped from the duodenum of a freshly killed dog or frog seems to possess the power of neutralizing this toxin, which is responsible for the continuance of the vomiting, and this method of treatment should be tried. The latter forms of treatment would be especially indicated in the middle cases which just escape resection.

It is not my object to discuss the technical methods of operative procedure in cases demanding resection, which would be of interest only to the operating surgeon, but simply to make a plea for a more careful study and earlier diagnosis than have been accorded this condition in the past. True, progress is rapidly being made in diagnostic methods, but there is still room for improvement, and the statistics which I have collected are illuminating. Among fifty-three patients operated on by a considerable number of Buffalo surgeons, twenty-three were operated on in from three to twenty-four hours. Out of these, twenty-two recovered and one died. This was a 3-months-old child,

on whom I operated twenty-three hours after onset, a resection being necessary. In none of the twenty-two cases in which the patients recovered were resections done. The remaining thirty patients were operated on in from one to ten days after the onset, the average being from two to four days. Of this number nine recovered and twenty-one died.

It must in fairness be stated that these statistics cover a period of nearly ten years, and were the best obtainable, which will account for the large number of late cases, and the consequently high mortality.

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POTT'S DISEASE TREATED BY OPERATION

A REPORT OF SIX HUNDRED AND EIGHTY-TWO CASES *

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Until within the past four years the treatment of tuberculosis of the spine was limited to an attempt at external fixation at the site of disease by means of apparatus, and an ankylosis of the diseased portion of the spine was awaited to bring about a gradual subsidence of the symptoms. In the large majority of the cases this was associated with great deformity, especially in the dorsal region. In a small percentage of the cases, however, an arrest of the symptoms was secured with very little, if any, deformity, and with practically a normal range of motion; but in the most of these cases the disease involved only two or three vertebrae.

In tuberculosis of the spine, as in tuberculosis of the hip or knees, the securing of a firm bony ankylosis gives the patient the best insurance against a recurrence of the symptoms, after the disease has once been arrested. That many years usually elapse before this ankylosis is obtained when the ordinary methods of conservative treatment are used is a well-known fact.

With the object of hastening this formation of ankylosis and thereby shortening the duration of treatment, the Albee and Hibbs operations were introduced. The phenomenal results, reported by both Albee and Hibbs following these operations, naturally attracted the attention of the profession, and doubtless influenced many surgeons to attempt these new operative procedures.

A report of the results obtained by many of these surgeons throughout this country will doubtless be of interest and value. Through the courtesy of Dr. V. P. Gibney, I was permitted to send out from the Hospital for the Ruptured and Crippled circular letters to something like seventy-five surgeons who, it was known, were interested in or had done either the Albee or Hibbs operation. The letters contained question blanks which, when filled out, would indicate the number of cases in which operation had been performed, the location of the disease, what percentage of the cases were benefited by the operation, as well as the percentage not so benefited, and the cause of failure if known. An inquiry was also made as to the postoperative complications, as meningitis, abscesses and paraplegia, and also as to the postoperative treatment, whether support was discontinued or continued, and if so, how long. A special effort was made in every case to learn from the reporting surgeon his personal opinion as to the efficiency of the operation used, and in what class of cases he deemed the operation indicated. In this way the following data were obtained:

Dr. Edward W. Ryerson of Chicago reports sixty cases in which the Albee operation was used. The patients ranged in age from 2 to 47 years. The location of disease was not given in these cases. Twenty-four, or 40 per cent., were reported as having the disease arrested, fifteen, or 25 per cent., as improved, seven, or 12 per cent., unimproved, and ten too recent to report. There were four deaths, one of fat embolism, one of miliary tuberculosis twenty-three months after operation, and one of amyloid degeneration one year after operation. Dr. Ryerson says, "It is only fair to state that many of those now classed as improved, or too recent to report, will undoubtedly make a complete recovery." There were three cases of reoperation, one because the graft was too short and in two cases to refasten a loosened end. In three cases there were preexistent abscesses which later opened into the operative field. In two cases there was septic infection from operation, and in one case from scarlet fever. In three instances there was necrosis of the graft. Five paraplegics were operated on and all improved, but two later had recurrence. Paraplegia developed in one case one year after operation. In concluding his report Dr. Ryerson says, "The older children have shown more gratifying results than the younger ones, while the adults have done remarkably well."

Dr. J. T. Rugh of Philadelphia reports forty Albee cases, of which 74 per cent. were benefited; the other 26 per cent. were not improved by the operation. There were two cases of paraplegia; one patient died, and the other was removed and lost track of. One patient developed paraplegia three months after operation and died of tuberculous meningitis sixteen months after operation. One graft was lost, the cause not being given. There was no suppuration in any case. Several patients died of pulmonary tuberculosis. In these cases the spinal condition was almost always benefited by the operation, but the constitutional state was at fault and they failed because of this. Support was used in all cases. Children under 14 years of age require longer support than patients over this age.

Dr. M. S. Henderson[1] of Rochester, Minn., reports thirty-nine cases with operation in the Mayo Clinic from July, 1912, to July, 1914, thirty-three by the Albee method and six by the Hibbs method. The youngest patient was 2 years of age and the oldest 53, with an average age of 27. The average duration of disease before operation was three years and four months. The location of disease was: one high dorsal, seven middorsal, eight low dorsal and sixteen lumbar. Of these thirty-nine patients, twenty-six, or 62 per cent., were improved, one unimproved, nine are too recent to report, one has not been traced, and one improved patient later developed an acute pulmonary tuberculosis and died. The postoperative treatment was recumbency for from four to six weeks in adults and from two to six months in children. After this a brace for at least one year following the operation, but preferably one year after cessation of all symptoms.

* Read before the Orthopedic Section of the New York Academy of Medicine, Oct. 15, 1915.

1. Henderson, M. S.: Some Observations on the Operative Treatment of Tuberculosis of the Spine, St. Paul. Med. Jour., October, 1914.

The conclusions as stated by Dr. Henderson were that either operation definitely shortened the treatment of Pott's disease by hastening the ankylosis, but they should not be allowed to supplant recognized orthopedic appliances.

Drs. H. M. Sherman and G. J. McChesney[2] of San Francisco report thirty operations done on twenty-seven children — three children who had double lesions having a Hibbs operation in the dorsal region and an Albee in the lumbar at the same time. Of these twenty-seven children, sixteen, or 60 per cent., were benefited. Seven of these are up and about without support, and among these are the three children having the double operations and lesions. Nine patients are in a satisfactory condition, but still wear jackets. Two patients are up without support, but their general condition is unimproved. Five have been put back in recumbency because of return of active symptoms. Two paraplegics failed to improve after operation. In one case an oncoming paraplegia cleared up, but in another, paraplegia developed after operation. Abscesses cleared up after operation in three cases, and in two remained unimproved. In one case an abscess appeared after a normal healing of the operation wound. In four Hibbs and two Albee cases there has been an increase in the deformity after operation. Of the deaths, one patient died of tuberculous meningitis five weeks after operation and another died of sepsis eight months after operation. All but one case healed by first intention; in this instance there was a septic sinus in the operation field and from it the wound became infected, resulting in a necrosis of the graft; but the ultimate result, so far as the spinal reinforcement was concerned, was most satisfactory.

Dr. W. W. Plummer of Buffalo reports thirty-two cases, eighteen of which were Hibbs and fourteen Albee operations. Of these 60 per cent. were in the middorsal and lower dorsal, and 40 per cent. in the lumbar region. In these cases, support was continued until all active signs of disease had abated. In twenty-nine, or 90 per cent., there were varying degrees of improvement following the operation. Two patients remained unimproved, and one died of tuberculous meningitis twelve weeks after operation. In six cases there were abscesses present at the time of operation, and in two of these the abscesses have resisted all treatment, with improvement in the others.

Dr. Henry Ling Taylor reports sixteen Albee operations; 62.5 per cent. were benefited by the operation, but the remaining 37.5 per cent. were not benefited. The postoperative treatment was recumbency for six weeks, and then a Taylor brace as long as there was evidence of active disease. One patient developed an abscess six months after operation. There was infection without harm in two cases, one paraplegic failed to improve after an Albee operation, and another died of tuberculous meningitis six weeks after operation. Dr. Taylor concludes his report by saying that his general impression is favorable to the operation, especially in adults.

Dr. F. J. Gaenslen of Milwaukee reports twenty-three Albee cases, all of which were dorsal, except one in the sacral region. Of these twenty-three patients, twenty-one, or 91 per cent., were satisfactorily benefited by the operation. One of the patients not benefited developed a new focus of disease three vertebrae higher up in the spine, necessitating a second operation which has apparently controlled the condition to date. One patient developed a stitch abscess which later communicated with a preexisting tuberculous abscess, resulting in a sinus. There was infection at the time of operation in three cases. In one case there was necrosis of the upper end of the graft, and in another case of the lower end. The first five patients had no postoperative support, but in all of the other cases a plaster-of-Paris jacket was worn for from six to eight months.

Dr. Andrew R. MacAusland of Boston reports twenty-one Albee cases. Eighteen, or 85 per cent., were benefited; of the other three cases, one failed of success because of infection, one patient died of miliary tuberculosis, and in the third case, although the graft is in good condition, a paraplegia has developed from an extradural abscess.

Dr. James C. Wilson of Hartford, Conn., reports twenty Albee cases, seventeen of which were dorsal and three lumbar. All the patients received varying degrees of benefit from the operation. Postoperative support was not used in any case. No complications were reported, except that one patient subsequently developed a tuberculous hip. One paraplegic improved very slowly, probably because the graft was broken at the time of operation.

Dr. C. F. Painter of Boston reports six cases, all in the dorsal or lumbar regions. In all, postoperative support was used. No complications were reported, except in one case in which the periosteum was separated from the graft, the graft later sloughing out. Good fixation of the spine was secured in all of the other cases, but no benefit was noted as the course of the disease was not shortened, nor was the treatment modified or abbreviated in any way by the operation.

Dr. Hoke of Atlanta, Ga., reports fifteen Albee cases, the history of five of which has not been followed. All of the rest, or 66 per cent., of the patients have been benefited by the operation. All patients are first placed on a corrective frame in the open air for from one to three months before operation. The operation is only done when the general condition is satisfactory. There were no infections or complications except in one case, in which the patient developed a small skin slough. Dr. Hoke expresses himself as having the highest opinion of the Albee operation as a phase of the treatment of Pott's disease. He considers postoperative support necessary, and lays great stress on the importance of choosing the proper time for operation.

Dr. W. W. Hoyt of Chicago reports twelve Albee operations, from eleven of which, or 88 per cent., the patients were benefited. One patient had a double lesion, eight were middorsal and three dorsolumbar. Postoperative support was not used. Two patients had abscesses at the time of operation. Uremia was given as the cause of failure in the case in which the patient was not benefited. Dr. Hoyt reports himself as being favorably impressed by the results he has thus far obtained.

Dr. R. W. Billington of Nashville, Tenn., reports eight Albee cases, in five of which, or 62 per cent., the patients were benefited. Two were low cervical, three dorsal and three lumbar. Two of the patients had abscesses at the time of operation. The postoperative treatment was seven weeks in recumbency on a frame or plaster-of-Paris bed, followed by a plaster-of-Paris

2. Sherman, H. M., and McChesney, G. J.: Bone Splinting in Vertebral Tuberculosis, California State Jour. Med., December, 1914.

jacket for four to sixteen weeks. One patient, having a sharp kyphosis, developed a skin slough baring the lower end of the graft, the removal of which was followed by prompt healing of the wound. In one of the lower lumbar cases the graft failed to unite to the sacrum. The third patient, having a pulmonary tuberculosis at the time of operation, showed a postoperative improvement for one year, after which the pulmonary infection again became very active. This patient then developed a lumbar abscess and died eighteen months after operation.

Dr. Packard of Denver reports three Albee cases, in all of which the patients have been benefited by the operation. Two of the cases were dorsal, the other dorsolumbar. Postoperative support was used. No complications followed.

Drs. Lord and Orr of Omaha report one case, in which the patient benefited by an Albee operation. Recumbency for several weeks, and then a jacket, was the postoperative treatment used.

Dr. Albee reports 198 cases in which operation was performed by him before Jan. 1, 1915. The age varied from the youngest of twenty months to the oldest of 65 years. In 184 cases of the 198, or 92 per cent., the disease was reported as being arrested, in two there was some improvement, and up to the present time twelve patients have died. Of these, six were said to have been relieved of all symptoms of active disease, dying from some intercurrent complication. One, a child of 6 years, died the day following operation, probably from shock. In this case mallet and chisel were used to remove the graft from the tibia. Another patient died four days following operation from acidosis, one from status lymphaticus, and another died two years following operation from suppurative meningitis which was secondary to middle ear disease. In this case necropsy showed a complete cure of the tuberculous spine. Another patient died of pneumonia one week after operation. Amyloid degeneration of the viscera and tuberculosis of the lungs each caused a death, and the remaining patient died of some acute abdominal condition.

The report of 158 cases in which operation was performed by Dr. Hibbs was furnished by Dr. Benjamin Farrell.[3] Of these, twenty-two patients were operated on during the year 1911, seventy-two during 1912 and sixty-four during 1913. They ranged in age from 18 months to 41 years. The duration of the disease before operation varied from four weeks to thirteen years, and the range of deformity varied from three to fourteen vertebrae. Of previous treatment, twelve had been wearing plaster-of-Paris jackets, ninety-two others had worn some other form of spinal support, and one had been on a Bradford frame. Two had undergone bone transplants from the tibia, and four had previous osteoplastic operations, and in all six of these cases an insufficient number of vertebrae had been included in the operations.

Twelve patients had psoas abscesses at the time of operation, forty-eight had psoas spasm and the reflexes were increased in forty. There were three cases of paraplegia included in this series.

Of the 158 patients, 144, or approximately 90 per cent., had an apparent arrest of the disease and were able to carry on their usual avocations of life, whether work or play, without apparatus one year after operation. The three patients with paraplegia were still reported as being unable to walk. Four other patients were operated on again, and seven died. The causes of death in these seven cases were given as follows: Three died of miliary tuberculosis, in two cases eighteen months after operation, and in the third twelve months after operation. Three patients died of tuberculous meningitis, one six months, another sixteen months, and the third twenty-two months after operation, this patient having been infected before he was admitted to the hospital. It should be noted that the cause of death was extrinsic in every case and apparently not due to the operation itself. In the six cases referred to in which reoperation was necessary, the secondary operation was successful as in the other cases.

3. Farrell, B. P.: Hibbs' Osteoplastic Operation for Pott's Disease, The Journal A. M. A., Jan. 30, 1915, p. 398.

SUMMARY

A summary of the report of the results obtained in the 642 operative cases shows that 538 patients, or 83 per cent., were benefited by the operation. If we exclude the reports of Albee and Hibbs, we still have a report of 286 cases in which operations were performed by fourteen surgeons located throughout this country. Of these 286 patients, 209, or 73 per cent., received benefit as a result of the operative treatment. Of the entire series, nineteen cases were too recent to report, and six had been lost track of.

Abscesses were present at the time of operation in twenty-eight cases, in seven of which improvement was reported after operation. In only five instances was there postoperative development of abscess. Paraplegia was present at the time of operation in thirteen cases, in seven of which there was improvement, but in two later a recurrence. In the other six cases there was no postoperative improvement of the paraplegia to date. Paraplegia developed after operation in three instances. There were thirty deaths, or approximately 5 per cent. mortality. The disease in six of these cases was reported as having been arrested at time of death. The causes of death were given as follows: tuberculous meningitis in seven cases, pulmonary tuberculosis in three cases, miliary tuberculosis in five, pneumonia in one, septic meningitis in one, fat embolus in one, status lymphaticus in one, acidosis in one and pyemia in one case. In the remaining cases the cause of death was not given. In the tuberculous meningitis cases it is difficult to say whether or not the operation was a factor in the etiology. In the seven meningitis cases, death followed operation in five weeks in one case, in six weeks in another and in the other cases three, four, six, sixteen and twenty-two months, respectively. It is doubtful if the trauma occasioned by either of these operations was sufficient to cause a meningitis. Even granted that this is possible, it is very doubtful if sufficient time elapsed in two of these instances at least for the development of the complication to such a point as to cause death; but in the other cases in which over three months elapsed, it is possible.

That tuberculous meningitis is accompanied by miliary tuberculosis throughout the viscera in a large percentage of the cases, and that meningitis is very frequently caused by an extension of the miliary process to the meninges, has been proved by necropsy. Unfortunately there was no necropsy report in any one of these cases, so a positive conclusion cannot be reached as to this point in these instances.

Dr. Ryerson reports the death from fat embolus. He thinks the embolus had its origin in the tibia and

advises the use of a tourniquet on the leg from which the graft is to be obtained, thus preventing a repetition of this complication.

There were nine infections at the time of operation, seven instances of necrosis of the graft, or a portion of it, and in two cases there were small skin sloughs.

Of the sixteen surgeons reporting, twelve considered postoperative support necessary and considered the operative procedure as a most valuable aid to the treatment of Pott's disease in selected cases. Four considered the postoperative support unnecessary after the period of recumbency, accepting Dr. Albee's idea that a certain amount of motion would stimulate and hasten the formation of ankylosis. One surgeon reported uniformly unsatisfactory results, so far as the abbreviation of the period of treatment was concerned.

CONCLUSIONS

This report of operative cases is intended to be only a preliminary report. It was impossible to give a more detailed report because of the limited amount of information obtainable from the data gathered from the question blanks sent to the various surgeons. As stated before, information only on the major points of interest was asked, and a special attempt was made to obtain the personal opinion of each contributor as to the value of the operative procedure used in the treatment of Pott's disease. It is undoubtedly too early at this time to attempt a more detailed report of operative cases, as such a report should not be undertaken until there has been at least three years of postoperative observation. Since twelve of the sixteen contributors continued supportive measures after operation, in these instances it is difficult to estimate just how much credit should be given the operation, and how much should be reserved for the support when it continues to be a phase of the postoperative treatment. On the other hand, those surgeons deeming postoperative support unnecessary report as great or even a greater percentage of cases having the disease arrested; so in these instances, at least, we must place much of the credit to the operation.

After a careful consideration of the facts obtained from various sources, it would seem that we might safely draw the following conclusions from this preliminary report:

1. There can be no reasonable doubt that these operations, in a large percentage of the cases, abbreviate the treatment of tuberculosis of the spine by definitely hastening the curative ankylosis so necessary in this disease.

2. By hastening ankylosis, the likelihood of an increase in the deformity is proportionately decreased, since deformity depends on destruction of osseous tissue, and this in turn depends to a large extent on the duration of the active disease process.

3. These operations are undoubtedly best adapted to the treatment of Pott's disease that involves the cervicodorsal, dorsal, or dorsolumbar regions, since they are probably one of our best means at the present time of preventing the marked degree of deformity which develops in approximately 75 per cent. of these cases, if treated only by the conservative method. Ankylosis of several vertebrae in this region is not associated with any serious amount of limitation of motion if unattended by marked deformity. On the other hand, as approximately 75 per cent. of Pott's disease involving the cervical and lumbar regions develop but a slight degree of deformity when treated by external appliances, and since the development of ankylosis of several vertebrae by operation in either of these regions would be associated with marked restriction of motion in a majority of the cases, it would seem best not to be too hasty in advising operation in either of these regions. This applies especially to children.

4. It seems to be the general opinion of the majority of the contributors that the operations should be considered only as one phase of the treatment for Pott's disease, and that postoperative support should be continued until all signs of active disease have disappeared.

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THE ANATOMIC DISTRIBUTION OF CUTANEOUS NEOPLASMS *

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In determining clinically the variety of any new growth in the skin, a certain amount of consideration may properly be given to the known relative frequency and the known elective site of the different varieties of cutaneous neoplasms. With this fact in mind, it has seemed worth while to note these points while collecting and classifying the skin tumors sent to the laboratory for examination. During the past nine years there have been recorded histologic diagnoses on 352 tumors of the skin, which may be grouped as follows:

Papillomas (including 3 corns and 3 cutaneous horns)		44
Epitheliomas	Papillary 3; Basal cell 57; Squamous 62	122
Pigmented moles		28
Melanocarcinoma		11
Carcinoma metastasis		1
Cyst, implantation		15
Cyst, dermoid		5
Cyst, sebaceous		18
Fibro-epithelial (composite) tumors		3
Keloids		9
Granuloma		7
Lipoma		5
Angioma		22
Fibroma		38
Sarcoma	Fibro 11; Angio 2; Pure 11	24
Total		352

Many of these specimens were sent to the laboratory merely to add to the collection, but the majority, perhaps, were sent with the idea of determining the character of the tumor; and it is interesting to note that 45 per cent. of the whole number showed definite histologic evidence of malignancy.

Epithelioma.—An examination of the anatomic distribution of the epitheliomas shows that 24 were on the forehead, 21 on the cheek, 13 on the nose, 11 on the lip, 9 on the neck, 9 on the hand, 7 on the scalp, 7 on other parts of face or neck, and the rest scattering. About 75 per cent., then, of the epitheliomas were located above the clavicle, and 84 per cent. of all were on uncovered surfaces of the body.

As between the squamous and the basal cell type, two striking differences appear with regard to their chosen sites. For while epitheliomas of forehead, scalp and cheek are quite evenly divided between the

* From the Laboratory of Surgical Pathology, Columbia University.

two types, all of those on the lip and nearly all of those on the neck (7-2) and hand (8-1) were squamous, but eleven out of the thirteen on the nose were basal cell. Among the other tumors, the total of each variety was so small and the location so diverse that it seemed sufficient to condense the many regions into four broad divisions of Head and Neck, Trunk, Upper Extremity and Lower Extremity.

Papillomas.—The papillomas of this series stand next in number to, and have clinically been confused more often with, epitheliomas than have any of the other tumors.

Of 41 papillomas whose location was given, 20 were on the head and neck. Fourteen (10 of which occupied the hand) were from the upper extremity, 3 from the trunk, and three from the lower extremity — the location of choice was the hand (10). In other words, 49 per cent. were above the clavicles and 75 per cent. in all were on the unclothed surfaces of the body.

Fibromas.—The location of 35 fibromas was given as follows: 11 on the head and neck; 15 on the upper extremity; 2 on the trunk and 7 on the lower extremity. Thus only 31 per cent. were above the clavicle and 40 per cent. on unclothed surfaces.

Sarcoma.—The little series of sarcomas was still more evenly distributed, 5 sarcomas having been found on the head and neck (four of them on the forehead), 6 on the upper extremity, 3 on the trunk and 7 on the lower extremity; 24 per cent. were above the clavicles and 33 per cent. on unclothed surfaces.

Angioma.—The angiomas, on the other hand, show a decided preference for the upper portion of the body, 12 out of 22 coming from the head or neck and 7 from the upper extremity. Of these, 57 per cent. were above the clavicle and 81 per cent. on unclothed surfaces.

Pigmented Moles.—It is difficult to imagine pigmented moles being removed simply as such, and therefore I have grouped them with melanotic carcinomas with which they were most probably confused. Of these two varieties of tumors there were removed, in all, 13 from the head and neck (only one of which was carcinomatous); 5 from the upper extremity (of which, also, 1 was malignant); 8 from the trunk (of which 2 were malignant), and 7 from the lower extremity (5 of which proved to be melanocarcinomas). Four moles and 2 melanocarcinomas were from unknown locations. Only 11 per cent., then, of the melanocarcinomas whose sites were stated were located above the clavicles, and the same percentage were from unclothed surfaces. The far higher percentage of pigmented moles (54 per cent.) removed from unclothed surfaces suggested that some may possibly have been excised for cosmetic reasons.

On combining these results, it appears that, of malignant tumors, the epitheliomas alone show a distinct preference for the head and neck while the sarcomas and melanocarcinomas prefer the trunk and extremities, particularly the lower. Moreover, the epitheliomas are overwhelmingly in favor of unclothed surfaces of the body, while sarcomas and melanocarcinomas generally choose covered parts.

It is interesting to find also that the large majority of epiblastic type of tumors, irrespective of malignancy, occur on unclothed surfaces while those of doubtful or frankly mesoblastic type occur preponderatingly on the covered parts.

812 Park Avenue.

ARTIFICIAL PNEUMOTHORAX FOR PULMONARY HEMORRHAGE

JOHN R. LITTLEFIELD, M.D., CUMBERLAND, MD.

Man, aged 33, physician, with a large tuberculous cavity of the right lung, lost over a pint of blood, Oct. 7, 1915, but refused artificial pneumothorax. Ten c.c. of normal horse serum were given, and three-eighths grain of morphin. At 5 p. m. another hemorrhage occurred about as copious as the preceding one.

Horse serum and morphin were repeated October 8; at 3 p. m., there was a still more copious hemorrhage. Two injections of horse serum, 10 c.c. each were administered. At 11 p. m. another hemorrhage occurred, and it was thought that the patient could not survive. One-fourth grain of morphin and one-fiftieth grain of atropin sulphate were administered.

October 9 at 5 p. m. and again at 10:30 p. m., hemorrhages recurred. The patient was then persuaded to submit to an artificial pneumothorax.

A 2-inch needle was connected with the atomizer bulb of a blood-pressure apparatus. The skin was sterilized with tincture of iodin, and cocainized in the sixth interspace in the posterior axillary line. Before puncture, the skin was slid aside so that it would have somewhat of a valvelike effect in preventing the escape of air. Several thicknesses of gauze were placed over the air inlet valve of the atomizer bulb.

As the needle entered the skin, air pressure was made and continued until the patient showed the first signs of dyspnea, which required complete compression of the atomizer bulb seventeen times. The bleeding immediately ceased, and the patient stated that he was far more comfortable, as he had a feeling of support in that lung. Half an hour after compression, a soft clot half the size of a hen's egg was coughed up. For the next eighteen hours the sputum was blood streaked. The patient was admitted to the tuberculosis sanatorium October 25, and is growing stronger and bleeding has not returned. The singular part of his history is that he did not suspect tuberculosis until the first hemorrhage occurred.

SHORTENING OF THE SUSPENSORY LIGAMENT OF THE LIVER FOR PTOSIS BY THE "ROUND LIGAMENT" METHOD

GASTON TORRANCE, M.D., BIRMINGHAM, ALA.

In doing Rovsing's operation for visceral ptosis, it is often necessary to elevate the liver also.

It occurred to me, while operating in a case in which the liver was very low, that the suspensory ligament might be treated as the round ligament is done in shortening the uterine supports.

A long curved forceps is pushed through the posterior layer of fascia just below the tip of the ensiform cartilage; the suspensory ligament is caught and pulled back through this small opening, and drawn down tight enough to bring the liver up snugly against the diaphragm, and is sutured to the fascia and muscles.

In a series of sixteen cases in which I have done Rovsing's operation, modified, I have done the "round ligament" operation four times, with most excellent results.

In one case in which the left lobe was very long, I passed sutures through the liver and attached it to the diaphragm also.

Cruelty and Research.—The experimenter, even if he were really cruel, would usually defeat his own ends by the infliction of pain (*a*) because the pain impulses would cause disturbance of the normal functions which he seeks to discover, and (*b*) because the struggles of a suffering animal would disturb the adjustment of apparatus and prevent the desired observation. It is the total ignorance of the real situation that causes so much emphasis to be laid on this point by the opponents of research.—Samuel S. Maxwell, *Science*.

New Instruments and Suggestions

A USEFUL HYSTERECTOMY CLAMP

MAURICE J. GELPI, A.B., M.D., NEW ORLEANS

The clamp illustrated here was designed for the special purpose of preventing the possibility of slipping of an inaccessible pedicle, which is likely to retract beyond the reach of the operator. It offers distinct advantages in dealing with such a pedicle in the course of vaginal or abdominal hysterectomy, or nephrectomy.

The clamp combines several of the distinctive features of other clamps in common use. It has the durable "box" lock, the curve of the Péan, the tip of the Kocher, and in addition to the usual transverse teeth, there is a single longitudinal ridge, fitting into a corresponding groove in the opposite blade. The combination of these features affords almost perfect security against slipping, even though the

Hysterectomy clamp showing construction of clamping surfaces of blades.

pedicle is quite thick and under considerable tension. The cuts show clearly the details of both blades as well as other points in construction, so that no further description seems necessary.

Audubon Building.

A NEW TONSIL KNIFE

H. V. DUTROW, M.D., DAYTON, OHIO

This knife was worked out by Dr. D. F. Reeder of Ancon Hospital, Canal Zone, and myself, during our term of service with the United States government in the eye, ear, nose and throat department of that institution. The desire for such an instrument came about at the time that might well be termed the evolution in tonsil surgery, namely, the substitution of tonsillectomy for tonsillotomy. We were more than 2,000 miles from medical centers, and had read of Dr. Ballenger's sharp dissection method with scalpels and various other methods of complete enucleation. A Ballenger's knife was procured, but was not entirely satisfactory in that we felt the need of a concave cutting edge more than a convex; hence the double edged knife as shown in the accompanying illustration. With this instrument it is possible to remove completely by sharp dissection every type of tonsil that we encounter. It is especially serviceable in delivering from its bed a completely submerged tonsil by dissecting back the mucous membrane and pillars overlying the tonsil, thereby preserving every vestige of mucous membrane, which is so valuable in covering the fossa and reducing the amount of scar tissue. The knife is especially valuable when used in conjunction with the snare. I very rarely, if ever, do a tonsillectomy by dissection alone. After the mucous membrane and pillars have been separated and the upper lobe of the tonsil freed from its fossa, the snare wire is thrown around the pedicle, and the enucleation completed. It is also possible with this knife to do all the separation necessary without the use of any other knives or blunt dissectors. The end of the handle is constructed

The Reeder-Dutrow tonsil knife.

in such a way that it may be used when the stripping back of the mucous membrane and pillars is desired or any blunt separation is required. If in any case the operator desires not to use the convex edge of the knife, and if he strikes the patient's lip or palate, cutting them, he may dull this edge or grind it down to avoid this unpleasant feature, using only the concave edge for his operative procedure.

The laryngologists of today are about equally divided as to sharp versus blunt dissection. This knife belongs decidedly to that class of men favoring sharp dissection. With it one is enabled to cut the tissues without mauling and tearing them, as is the case with blunt dissection. Sharp dissection places the operation of tonsillectomy strictly within the class of distinctly surgical operations with clean-cut dissection, thereby preserving the integrity of the parts and a consequent shorter period of convalescence. In removing the left tonsil I prefer to stand on the patient's right, and change position to the other side in removing the right tonsil.

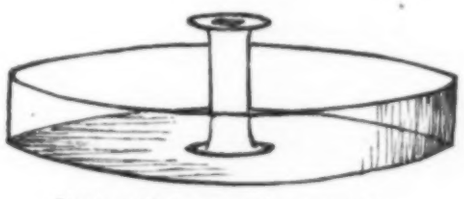
922 Reibold Building.

STAINING DISH FOR COVER GLASS PREPARATIONS

F. MACBETH ENDE, M.D., NEW YORK

This simple device is easily made by fixing an ordinary glass ligature spool to the center of a Petri dish. The ordinary cover glass forceps, the jaws of which are usually covered with a film of old dry stain, frequently spoil results by precipitation, leaving a granular residue at one corner of the cover glass, the excess running down the arm. Dishes, while doing away with this and other disadvantages, require a large amount of stain.

In making this dish, a few chips of sealing wax are placed in the center of the Petri dish, and it is held over an alcohol flame until the glass is heated and the wax melts. A liga-



Staining dish for cover glass preparations.

ture spool, the end of which is about 1 cm. in diameter, previously heated to prevent breaking, is pressed into the molten wax, which is allowed to harden. If a few drops of water are placed on the top of the spool, a cover glass is held firmly from slipping or tipping when the stain is dropped on. Dilution and washing can be done, the excess flowing into the dish. To minimize the action of the alcohol or ether on the wax, a small amount of water is placed in the dish to dilute it as it overflows.

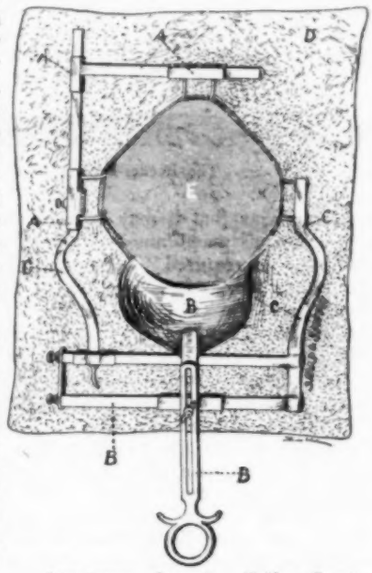
302 West Eighty-Seventh Street.

AN ATTACHMENT FOR THE BALFOUR-GOSSET, MAYO-SIMPSON AND OTHER ABDOMINAL RETRACTORS

J. RAWSON PENNINGTON, M.D., CHICAGO

"A" in the accompanying figure is an adjustable arm and blade, which I have had made for the Balfour-Gosset, Mayo-Simpson and other retractors.

"D" is a rubber laparotomy sheet with a sleeve, and is similar to all other rubber laparotomy sheets. This sheet with its sleeve extending into the abdominal cavity is placed over the incision. The blades of the instrument are then passed through the sleeve and the instrument opened, exposing the cavity "E."



Attachment for the Balfour-Gosset, Mayo-Simpson and other abdominal retractors.

Advantages: This combination of retractor and rubber sheet equalizes the pressure on the incision and aids in controlling hemorrhage. It prevents contamination of the operator's gloves by the patient's skin. It protects the edges of the wound, traumatizes the tissues less than the ordinary hand retractor, lessens the danger of infection, facilitates primary union, gives better view and control of the field of operation and supplants one assistant.

31 North State Street.

COCAIN ANESTHESIA FOR SUBMUCOUS RESECTION OF NASAL SEPTUM

A. M. PAINTER, M.D., YOUNGSTOWN, OHIO

While cocain intoxication in this operation is usually limited to loquacity and slight mental exhilaration, in some rare cases disagreeable hysterical symptoms, extreme nervousness, crying, restless movements and even hysterical transient paralysis occur and render the limiting of the amount of the drug used desirable.

The application of cocain over the entire operative field in the form of a mud of cocain and epinephrin, as advised by Freer, makes an intense insensibility possible with the use of much less cocain than when the usual 10 per cent. solution is employed. I have found, however, that even less of the drug, merely a minimal amount, will produce profound local anesthesia if the cocain mud be applied directly over the nerve trunks supplying the septum at their entrance on the septum, where they are quite superficial. The most important of these nerves is the septal branch of the anterior ethmoidal nerve, which is found about opposite the anterior end of the middle turbinated body where it descends from the cribriform plate over the septum. To this place the cocain mud is applied on a cotton applicator, the mud being carried as high up on the septum as possible, to reach the nerve trunk near the cribriform plate. The second nerve trunk to be reached is the nasopalatine nerve, which descends over the septum about along the anterior border of the vomer. The anesthesia is complete in about three minutes, and will last during quite lengthy operative procedures. To perfect ischemia the epinephrin is then applied to the site of the incision only.

Therapeutics

EPILEPSY

Epileptic fits caused by traumatism, by cerebral congestion and inflammation, by uremic or other poisoning, by tumors, and by degenerated cerebral arteries do not constitute the disease of epilepsy. True epilepsy, sometimes called idiopathic (a word now so much restricted as to have almost reached the vanishing point) epilepsy, has as yet shown no real pathology. The hereditary factor has recently been studied by Thom.[1] He found that 126 cases of 157 investigated showed direct heredity, namely, the parents or grandparents had had epilepsy. He also found that there were 293 hereditary defects in the 157 cases, sometimes a member of a family having more than one defect. Epilepsy was associated with alcoholism in 38 per cent. of the cases, with insanity in 27 per cent. of the cases, and feeblemindedness in 10 per cent. of the cases.

Aside from the hereditary tendency, the etiology of true epilepsy is still unproved. However, lately several papers have appeared which seem to show that there are possibly several causes of true epilepsy, among which is intestinal stasis and consequent absorption of the toxins. It has long been recognized that an epileptic patient must have free bowel movements, and should generally have his protein food reduced in amount, and frequently have all meat withheld, if his fits are to be reduced in frequency and in intensity; but Reed[2] claims that epilepsy may apparently be stopped by proper surgical treatment of intestinal stasis.

Reed became interested in the subject of the treatment of true epilepsy by needed abdominal operations, because almost all epileptics are constipated, and because when their constipation has been cured he found many patients ceased to have epileptic attacks. He also found that replacement and fixation of a ptosed colon by his "retroperitoneal implantation method" cured persons with epilepsy.[3] He also has cured epilepsy by colectomy. He learned, by his abdominal findings, operative interference and consequent results, that "a ptosic condition of the mesocolon, whether affected by the weight of the loaded colon or by that of a fat omentum or by both, could produce obstructive angulation of the duodenum, and second, that the specific poison of epilepsy, whatever its character, was elaborated in the duodenum." He decided that it was wise to do colectomy at two stages, at first doing an "iliosigmoidostomy or short-circuit procedure" and later, at a considerable interval, to remove the colon. After the first operation he finds there is always a relief of constipation and a lessening of the epileptic attacks. Later, in some instances, which he explains by the poison-carrying, small intestine contents reaching the inactive colon, there occur severe convulsive attacks which render necessary the elimination of this useless colon.

Contrary to the investigation of Thom,[1] Reed found that his cases of epilepsy with intestinal stasis did not show heredity. The symptoms in his patients seem to

1. Thom: Boston Med. and Surg. Jour., Sept. 23, 1915.
2. Reed, C. A. L.: The Probable Cause and Logical Treatment of Epilepsy, THE JOURNAL A. M. A., March 27, 1915, p. 1047.
3. Reed, C. A. L.: Fixation of the Ptosic Stomach and Colon by Retroperitoneal Implantation, THE JOURNAL A. M. A., March 28, 1914, p. 999.

show distinctly the absorption of intestinal toxins. There is lassitude, mental depression, dizziness, symptoms of what may be termed biliousness, often high blood tension, and always a constant tendency to the formation of intestinal gas of very offensive odor.

Certainly, Reed's claim that he has succeeded in diminishing the number of epileptic attacks and in curing many cases by abdominal operations to relieve intestinal stasis must make an impression on clinicians. The necessity for the prevention of constipation, and often for the withholding of meat proteins, and a possible operative interference, in suitable cases, should be considered. Whether or not the results would be as satisfactory in patients who have apparently inherited the tendency to epilepsy must be decided later.

The intestinal origin of some cases of epilepsy has recently been emphasized by the investigations of Cornwall.[4] He finds that Roentgen examinations in epileptic cases will often show colon displacements, and medical or physical treatments aimed at relieving constipation will diminish the epileptic attacks. Of course, in these conditions of ptosis, constipation may be prevented by abdominal supports, but the ptosis can be cured only by operative interference.

Another point of view of the origin of many cases of true epilepsy has been presented by L. Pierce Clark[5] after years of study of this disease. Clark believes that true epilepsy is a psychosis, and that each case should be studied with that idea in mind. He finds that the analysis of disturbing dreams and then tracing these dreams back to childhood, with the patient's aid, may show a distinct cause first for the fear, then for the dreams, then for the dread, then for the temper and moroseness, and finally for the fit. Many of the fits he finds to be due to an unanalyzed sexual desire; others to a distinct desire to get near to the mother for protection against some imaginary danger, that is, during the attack there is a distinct return, whatever the age, to infantile desires and fears.

This conception of the cause of the disease of epilepsy is novel and may not be generally accepted by clinicians; but Clark's studies certainly show that this disease must be analyzed much more carefully than it has been, and from the psychic standpoint. Psychic analysis is advancing so rapidly as to have far outstretched the understanding of most of us, but by such expert analysis many obscure conditions have been clarified.

Clark says that while bromids will slow up and often stop, temporarily at least, epileptic convulsions by stupefying the nervous centers ("the sensorimotor portion of the cortex"), after they have been pushed for a time the pent up, unexploded desires may burst forth again in a series of explosions or fits. Also, neurologists assert that bromids interfere with their study of the fits and the cause of the fits.

Bromids surely damage the brain, the cord, the muscles and the general nutrition; hence we record a failure when we give bromids for a long time in epilepsy. A patient who has long taken bromids requires many months to eliminate them completely from his system.

A study of Clark's thesis presents the following practical conclusions:

1. Abnormal fear, timidity, undue adherence to one individual (generally the mother), attacks of temper, violent crying, more or less constant disagreeableness, more or less constant misbehavior, and all forms of hysteria should be studied as psychoses that may lead to epilepsy.

2. Fits should be studied from every standpoint, and if no tangible cause can be discovered, they should be considered to be epilepsy.

3. The epileptic should be removed from mental strain (too much school), should be given a country life if possible, should be allowed no tea, coffee or other cerebral stimulants, should be given a minimum amount of animal protein, should be given alkalies, as lime (the parathyroids may not infrequently furnish an abnormal secretion, though this is not mentioned by Clark), and sodium bicarbonate or potassium citrate. The bowels should move freely, daily. There should be daily warm baths, and the physical exercise should be sufficient for the age and temperament.

4. If this regimen does not stop the fits, then a careful psychic analysis should be started. The whole previous life should be studied through the patient, mother, nurse and other members of the family. Dreams, desires, fears, sexual tendencies, the epileptic cry, the character of the convulsions, etc., must all be analyzed. Even the particular way the head turns, or which arm begins to twitch first may all be found to have a tangible infantile or childhood cause, and may not at all mean a cerebral localization, as once thought.

5. If the physician in charge of an epileptic is not skilled in psychic analysis, the patient should be sent to an up-to-date institution for study and treatment. This also is frequently advisable for home reasons.

6. Bromids and other sedatives should be given only temporarily, and then with regret. They may be useful for a time, but they cannot cure epilepsy, and they are responsible for a great deal of serious harm and even permanent injury.

Another point of view as to the cause of some cases of epilepsy is related to the fact, long presented by some physicians, that there can be all grades of hypersecretion and hyposecretion of the thyroid gland. Logically all of the internal secreting glands may present the same long range of variations in their secretions, and these variations may cause varying kinds of disturbances as yet but little understood and often ascribed to hysteric, neurotic, toxic, or other vague cause. In this connection the work of McKennan, Johnston, and Henniger[6] on epilepsy should be described.

These physicians examined, by Roentgen ray photographs, the skulls of 115 epileptics, and found bony changes in the region of the sella turcica in 80 per cent. of these cases, while in a number of nonepileptics bony changes were found in only 10 per cent. — a striking difference. Some skulls showed pituitary enlargement or tumors, some thickening of the clinoid processes alone, others thickening of the bones of the anterior fossa of the base of the skull as well as thickening of the clinoid processes, and some also showed thickening of the body of the sphenoid bone. In twenty of the above 115 cases no bone disturbance was found, but ten of these were cerebral cases, three of which showed internal hydrocephalus, while in two cases the radiograms were taken very soon after the epileptic attacks had first developed.

4. Cornwall: Arch. Diagnosis, July, 1915.
5. Clark, L. P.: New York Med. Jour., 1915, ci, 385, 442, 515, 567, 623.
6. Pennsylvania Med. Jour., March, 1915, p. 429.

These findings are remarkable, and may show by future corroborative evidence that there is frequently disturbance in the sella turcica region in true epilepsy.

The average age of the patients examined was 23 years. The authors found no history of evidence of inflammatory cause for the bone thickening, and believe that it must be due to a disturbance of the pituitary gland. As hypertrophy of this gland has not been generally found in postmortems in epileptics, they conclude that the disturbance is hyposecretion of the posterior lobe of the pituitary due to a disturbed venous blood flow causing a passive congestion. They think the disturbance of the pituitary would account for the local increase in bone growth, and that a general acromegaly is not caused because the whole pituitary gland is not sufficiently involved. As in all cases of hyposecretion of the posterior lobe of the pituitary, they found there was an increased carbohydrate tolerance in all of the cases studied for this symptom, namely, in fourteen of their epileptic patients. Hence these physicians conclude "that so-called idiopathic or essential epilepsy is due to a mechanical injury of the pituitary gland." They did not find that feeding pituitary posterior lobe substance was of any benefit in controlling the epilepsy.

It has frequently been noted that epileptic attacks may occur in women at the time of the menopause, or in girls and young women when there is amenorrhea or delayed menstruation. The cause has been thought to be due to an intoxication caused by the changed metabolism, due either to insufficient elimination of nitrogenous waste products by menstruation, or due to a relative insufficiency of the thyroid gland at these times, and the thyroid is known to have detoxicating power. This inference has been borne out in many instances by thyroid feeding diminishing the number of epileptic attacks, and even curing some cases. It is possible in this polyglandular disturbance of ovaries, corpora lutea and thyroid that the pituitary gland becomes involved, and its disturbance may cause the epileptic attacks.

TREATMENT

It is evident that the treatment of the epileptic cannot be successful unless the etiologic factor in the individual case is determined and eradicated if possible. A study of all possible cerebral causes should be made, including roentgenograms of the skull taken in various positions. If the history of the case or the roentgenograms show that operations on the cranium are likely to be of value, expert cerebral surgery should be done.

Roentgenograms should be taken of the intestine after bismuth feeding. Finally, the patient should be studied psychically. The hereditary factor, the intestinal factor and the psychic factor have just been described. The greater the hereditary tendency to the disease, probably the worse generally is the prognosis of entire recovery. Permanent incurable lesions in the brain or meninges make the prognosis bad. The importance of intestinal stasis causing absorption of toxins and the curability of such stasis medicinally, mechanically or operatively has been emphasized. The necessity of psychic study and psychic treatment of epileptics has also been emphasized.

The importance of epileptic colonies and public institutions for the study and care of epileptics is now being recognized, and has already been inaugurated by a number of states. The importance of good, clean air, of outdoor work, or of indoor work under the best hygienic surroundings, has been shown to be very important for the epileptic, and will diminish the number of his attacks. It is also well known that such patients as are not idiotic will care for each other during an epileptic attack; therefore the nursing care of these patients in detention colonies is not great.

Constipation must be prevented, and the diet should be such as to cause the least possible production of toxins in the intestine. Generally, the lower the meat diet, the better for the patient, and all foods that contain large amounts of nuclein bodies, such as sweetbreads, liver, shad roe, etc., should be tabooed. Milk, eggs, fresh fish, peas, beans, vegetables, cereals and fruits make the best food for the epileptic. It is wise, when there is an opportunity, to individualize a patient's diet by ascertaining, under the different foods, the character of the digestion by examining the twenty-four hours' urine and the twenty-four hours' feces, but in public institutions where a large number of epileptics are handled, such examinations are almost impossible. The determination of the amount of indican in the urine, however, is indicative of the amount of intestinal indigestion, and indican in the urine in any amount should cause a change of diet and the administration of foods or drugs that will cause more profuse movements of the bowels.

Lastly, drugs must in many instances be given to the epileptic, and the most valuable are the bromids. It probably is not often true that a combination of several bromids acts better than one bromid. The main point to remember, as so well emphasized by Clark, is that bromids may do a great deal of harm as well as a great deal of good. Sodium bromid can probably be taken longer without causing harm than can potassium bromid. There is no possible advantage of strontium bromid over sodium and potassium bromid; it is more expensive, but is absorbed less rapidly, and more of it is probably lost in the intestinal canal. This has caused the belief that strontium bromid causes less unpleasant symptoms than either sodium or potassium bromid. However, dose for dose, less strontium bromid is active than sodium bromid or potassium bromid. If the dose of either of the last two is reduced, the unpleasant symptoms will be no more in evidence than with strontium bromid. Ammonium bromid is intensely disagreeable to take, and has no advantage over the sodium and potassium bromid. The other bromids are not worth mentioning. Calcium bromid and zinc bromid should be dropped from the pharmacopeia as entirely unnecessary drugs.

The enormous doses of bromids given not only do harm, but also are entirely unnecessary, and it is probably a fact, the same as is true of enormous doses of iodids, that only a certain amount will be absorbed and circulate in the blood; the large residue of enormous doses of salts passes out of the system unutilized. It has also been well proved that if sodium chlorid is partially or entirely removed from the diet, smaller doses of bromid are effective, because they are absorbed more readily and act when there are less salts in the system. The smaller the dose of bromid that will cause a diminution in the number of epileptic attacks, the less is the nutrition of the body disturbed, the less are the internal secreting glands disturbed, the less are the blood-forming organs disturbed, the less is the skin irritated by the bromid; and consequently the less are eruptions likely to occur, and the

less is the kidney disturbed by not being compelled to excrete large amounts of salts.

It should once more be emphasized that the administration of bromids will probably always reduce the frequency of the attacks, and in some instances may apparently cure epilepsy; but this symptomatic treatment is always to be regretted. In some cases due to nervous irritability and attacks due to some nervous reflex, bromids may be curative; but the future of long bromid treatment means mental and physical deterioration.

If the patient is in a condition of status epilepticus, large doses of chloral may be immediately needed, and under certain conditions morphin must be injected. If the convulsions are very severe, inhalations of chloroform are necessary. Hypodermic injections of scopolamin hydrobromid may be of value. Such a condition is an acute illness and must be treated as any other acute disease by such measures as are deemed necessary. Prolonged hot baths and free catharsis may relieve the intense cerebral irritation of these patients. Also, large amounts of water should be drunk to eliminate if possible the irritants in the blood. It is possible that venesection followed by a saline transfusion might be of value in relieving the brain of the toxins that are causing such a condition as that of status epilepticus.

The importance of the subject of epilepsy is shown by Graves,[7] ex-president of the National Association for the Study of Epilepsy when he states that by conservative estimate there is one epileptic for each 400 of the population of the United States and Canada, and that there are 250,000 epileptics among our 100,000,000 of population. He stated that in special colonies for epileptics only 7,000 could be cared for, while perhaps 125,000 of these epileptics need such colonization treatment.

It is very important that the general practitioner should recognize that an epileptic patient is perhaps not incurable; that he generally is not feebleminded, although he may become so; that he deserves to be studied and treated scientifically, and that the reward will not infrequently be a cured patient and a happy family. This is not to urge the patient or his family to believe that, even if cured, he can assume any walk of life that carries with it hard mental work, responsibility or anxiety. Such a cured patient should, also, not be compelled to do very laborious work. The lifework selected should be as agreeable to the patient as possible, and should not be strenuous, either mentally or physically.

7. Graves: Ill. Med. Jour., October, 1914, p. 373.

Better Control of Communicable Diseases.—A plan for securing better control of measles, whooping cough, scarlet fever and typhoid fever is being put into operation by Dr. F. M. Meader, director of the Division of Communicable Diseases of the New York State Department of Health. As soon as the cases and deaths are compiled for the previous month, the case rate and the fatality rate are worked out for each county. Where the case rate is high a circular letter will be sent to all physicians of that county notifying them of the unusual prevalence of the disease and offering the facilities of the laboratory for obtaining diagnosis in obscure cases. If the case fatality rate is high, it is assumed that the cases have not been reported, and the attention of the physician is called to the fact that the law requires that all cases, even suspicious ones, must be reported to the local health authorities.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

DIONIN (See N. N. R., 1915, p. 209).—The following dosage forms have been accepted:

Dionin Tablets, ¼ gr.—Each tablet contains dionin ¼ grain. Prepared by E. Merck, Darmstadt, Germany (Merck and Co., New York).

Dionin Tablets, 1 gr.—Each tablet contains dionin 1 grain. Prepared by E. Merck, Darmstadt, Germany (Merck and Co., New York).

ACET-THEOPHYLLIN SODIUM (See N. N. R., 1915, p. 375).—The following dosage form has been accepted:

Theophyllin Sodium Acetate Tablets, 0.15 Gm.—Each tablet contains theophyllin sodium acetate 0.15 Gm. Prepared by C. F. Boehringer & Soehne, Waldhof, Mannheim, Germany (Merck and Co., New York).

TRIPHENIN (See N. N. R., 1915, p. 242).—The following dosage form has been accepted:

Triphenin Tablets, 5 gr.—Each tablet contains triphenin 5 grains. Prepared by E. Merck, Darmstadt, Germany (Merck and Co., New York).

TROPACOCAINE HYDROCHLORIDE (See N. N. R., 1915, p. 38).—The following dosage form has been accepted:

Tubes Tropacocaine Hydrochloride, Sterilized, 1 gr.—Each tube contains tropacocaine hydrochloride 1 grain. Prepared by E. Merck, Darmstadt, Germany (Merck and Co., New York).

VERONAL-SODIUM (See N. N. R., 1915, p. 93).—The following dosage form has been accepted:

Veronal-Sodium Tablets, 5 gr.—Each tablet contains veronal-sodium 5 grains. Prepared by E. Merck, Darmstadt, Germany (Merck and Co., New York).

IODIPIN (See N. N. R., 1915, p. 160).—The following dosage form has been accepted:

Iodipin Tablets, 3 min.—Each tablet contains iodipin 3 minims. Prepared by E. Merck, Darmstadt, Germany (Merck and Co., New York).

APIOL-MERCK.—A non-proprietary brand complying with the standards for apiol. (See N. N. R., 1915, p. 226.)

Manufactured by E. Merck, Darmstadt, Germany (Merck and Co., New York).

CREOSOTE CARBONATE-MERCK.—A non-proprietary brand complying with the standards for creosote carbonate. (See N. N. R., 1915, p. 84.)

Manufactured by E. Merck, Darmstadt, Germany (Merck and Co., New York).

PHENOLPHTHALEIN-MERCK. — A non-proprietary brand complying with the standards for phenolphthalein. (See N. N. R., 1915, p. 244.)

Manufactured by E. Merck, Darmstadt, Germany (Merck and Co., New York).

QUININE TANNATE-MERCK. — A non-proprietary brand complying with the standards for quinine tannate.

Manufactured by E. Merck, Darmstadt, Germany (Merck and Co., New York).

SODIUM NUCLEINATE-MERCK.—A non-proprietary brand complying with the standards for sodium nucleate. (See N. N. R., 1915, p. 215.)

Manufactured by E. Merck, Darmstadt, Germany (Merck and Co., New York).

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, JANUARY 8, 1916

AT WHAT TIME OF LIFE DOES TUBERCULOUS INFECTION OCCUR?

The fundamental importance of infection during childhood for pulmonary tuberculosis in adults seems to be more and more generally supported by those who have especially to do with large clinical studies of the disease. Repeated demonstration of the well-nigh constant presence of healed or latent tuberculous lesions in nontuberculous adults, the evidence of the tuberculin reaction as to the high percentage of infections in childhood, and the observations of experimental pathology that the anatomic peculiarities of human pulmonary phthisis depend on the fact that the disease is developing in a subject already partially immunized to the disease, all have given support to the view advanced especially by von Behring that primary tuberculous infection occurs usually in children and rarely in adults.

From the clinical side, evidence both in support and in opposition to this concept has been advanced, the disagreements being understandable in view of the difficulty of securing accurate information from the histories of so chronic and insidious a disease as tuberculosis. On the whole, however, the evidence seems to be largely in favor of the principle stated. A particularly interesting clinical study of the effect of exposure in childhood on the occurrence of tuberculosis in adults has been reported recently by Wallgren[1] from the pulmonary clinic at Upsala. This investigation consisted of a comparison of 100 consumptives and 100 healthy persons as to their exposure during childhood to obvious opportunities for infection from tuberculous associates. Such a study is to be considered quite apart from the numberless investigations of the incidence of familial tuberculosis in tuberculous patients, for in the latter studies there is no consideration as to whether the tuberculous relatives were in contact with the patient, whether their tuberculous lesions were opened or closed, or whether the contact was in childhood or later; furthermore, not a little of the dangerous exposure comes from sources outside the family, as nurse maids, servants and schoolmates.

1. Wallgren: Beitr. z. klin. Tuberk., 1915, xxxiv, 173.

Wallgren considers only cases in which it can be shown definitely that during childhood the patient was in intimate contact with some one coughing from chronic pulmonary disease, which in all probability was pulmonary or laryngeal tuberculosis. As far as possible, nontuberculous disease was excluded. The subjects were about equally divided as to sex. Of the hundred tuberculous patients, fifty-one gave evidence of childhood contact with tuberculous associates, whereas of the hundred normal individuals, such contact was found in but thirteen. Allowing for the usual unavoidable errors of statistical studies based on clinical histories, the disparity here seems to be far too great to be merely fortuitous, and must be considered as strong evidence for the importance of childhood infection. The statement of Pollak that the earlier the infection the more serious the outcome also receives support from Wallgren's statistics, for of the fifty-one consumptives, fifteen had been exposed during the first five years of life, whereas, of the thirteen healthy persons who gave a history of exposure, in but one case had that exposure been before the sixth year. While statistical studies of this sort are extremely difficult and time-consuming, if conducted with enough care and controls to be worthy of consideration, their value in the vital problem of the control of tuberculosis is so great as to make them well worth the effort of those who have access to suitable material, and it is to be hoped that larger series of statistics on this topic will soon be forthcoming to settle definitely this fundamentally important question.

THE CAMPAIGN AGAINST TUBERCULOSIS

Among the various phases of the public health movement in this country of the last decade or two, the effort toward the gradual eradication of tuberculosis stands out prominently in its comprehensive planning and organization. The field that, ten years ago, was almost barren of any organized machinery for the control of the disease, includes at present 1,200 local antituberculosis organizations, 575 hospitals and sanatoriums, 450 special dispensaries, 1,000 dispensary physicians, 4,000 nurses and 400 open air schools. The total cost of creating and operating this machinery represents an outlay of over $100,000,000 of public and private funds.

The results so far achieved are shown in (1) the steadily growing enlightenment of the people on the subject of tuberculosis, its cause, methods of prevention and treatment; (2) the gradually falling mortality from the disease (in the registration area[1] in 1902, the rate was 16.3 per 10,000; in 1911, 13.2), and (3) the impetus given to the entire public health move-

1. Hoffman, Frederick L.: The Decline in the Tuberculosis Death Rate, 1871 to 1912, Ninth Annual Report, National Association for the Study and Prevention of Tuberculosis.

ment through concentration of public attention on a disease, the gradual eradication of which, by virtue of its etiology, is dependent on the realization of higher general health standards. The present lower mortality marks the effect of the intensive educational campaign, of the steadily expanding system of institutional and home control of the disease, and of the general improvement in the sanitary and economic conditions of the people. Tuberculosis, however, is still with us, with its appalling, though reduced mortality, and with some of the fundamental problems in its etiology still awaiting solution.

During the last ten years a gradual change has been taking place in the conception of the relative importance of the various causative factors in the present prevalence of the disease, and it is becoming apparent that further clinical, laboratory and sociologic investigations are likely to result in considerable modification or amplification of the methods directed at present toward its control. For instance, the grave etiologic importance of massive infection, through prolonged close contact with "open" cases of tuberculosis, particularly in crowded, unhygienic surroundings, has been well ascertained, through statistical, clinical and laboratory study. The question of the relative importance of "chance" infection, through infected dust, in public streets or places, or through casual contact with a consumptive, is still, however, in need of further elucidation. The growing incidence of tuberculous infection in children, with each successive year of the child's life, has been established by postmortems and, in recent years, by the greater frequency of tuberculin reactions with the advance of age. The relation of these implantations in childhood to the development of "adult" tuberculosis has been brought forward by von Behring, Baldwin and others. The character of the relationship or the modus operandi are still, however, in the realm of unsolved problems. Closely interwoven with this question is the partially solved problem of immunity in tuberculosis in its various theoretical and practical aspects.

The comprehensive system for the control and gradual eradication of tuberculosis, in the process of formulation at present, is built on facts ascertained chiefly in the last three decades of investigation and experience. Based on our present knowledge, Surgeon F. C. Smith,[2] of the U. S. Public Health Service, emphasizes chiefly the following important aspects of a campaign against tuberculosis: (1) control of sources of "gross" infection by hospitalization of advanced cases, particularly of those in contact with children; removal from tuberculous surroundings of children under 2 years, preferably under 4, and as much later as possible, and creation of special institutional provisions for such children; (2) earlier diagnosis of the disease, rendered possible by the universal application of the principle of periodic physical examinations of children and adults, and a system of industrial insurance permitting the worker to take cognizance of incipient symptoms of disease; (3) reduction in the prevalence of all those diseases which create a predisposition to tuberculosis, and (4) further improvement of industrial sanitation, with removal from industries of conditions causing undue "stress and depletion."

Because of its great prevalence and its baneful effects on the general health standards of this country, tuberculosis must be combated with the active participation of every available agency. The services of the federal government should be utilized particularly to establish a national effort against this disease. While the outline of Smith in its entirety is perhaps difficult of attainment, especially with relation to its immediate utilization as a plan of campaign, certainly if put into effect it would tend to decrease greatly the number of new infections through the propagation from old cases.

2. Smith, F. C.: The Epidemiology of Tuberculosis, THE JOURNAL A. M. A., this issue, p. 77.

THE ALLEGED SECRETORY NERVES OF THE THYROIDS

To the physiologist there is always a strong temptation to postulate secretory, trophic or regulatory nerves as the direct controlling factors in the functioning of the various organs of the body. A little careful analysis usually shows, however, that variations in the blood supply are of themselves often sufficient to account for changes of function without the necessity of assuming any direct or specific nervous effects on the active cells involved. Thus it is a familiar fact that the kidney is sensitive and promptly responsive to alterations in the vascular conditions in that organ. Again, recognized chemical substances circulating in the blood may become stimulants or depressants to glandular activity independent of any specific nervous influence. All of these possibilities tend to make it difficult in some cases to decide whether one is dealing with vasomotor nerve, sensory nerve or hormone effects in certain organs.

Lately there has been renewed activity in the attempts to interpret the mechanism of thyroid function. Here there is an added difficulty in the fact that no characteristic physiologic response reveals itself in the form of easily measured phenomena like blood-pressure changes or the flow of some external secretion. Inasmuch as the iodin in the thyroid has currently been associated with its function, it has become customary to estimate the iodin content and draw conclusions regarding changes in the activity of the gland from variations in this element. On this basis Rahe, Rogers, Fawcett and Beebe[1] believed that they could demonstrate the presence of secretory nerves to the thyroid because an unquestioned effect of stimulation was noted on the iodin content.

1. Rahe, Rogers, Fawcett and Beebe: Am. Jour. Physiol., 1914, xxxiv, 72. The Nerve Control of the Thyroid Gland, editorial, THE JOURNAL A. M. A., July 25, 1914, p. 325.

Watts[2] has properly pointed out that such data cannot be construed as proving the presence of true secretory nerves until it is shown that the vasomotor changes in the thyroid induced by stimulation of the thyroid nerves are not by themselves capable of inducing the changes in the content of iodin. In experiments which he has conducted in the Hull Physiological Laboratory at the University of Chicago, it was demonstrated that although a decrease in iodin can actually be brought about by appropriate nerve stimulation, the latter induces vasoconstriction in the thyroid gland. But a similar decrease can also be brought about by decreasing the thyroid blood flow by purely mechanical means.

The changes in the thyroids thus far shown to be caused by stimulation of thyroid nerves can accordingly all be accounted for by vascular changes. Histologic alterations indicative of specific glandular activity are not apparent in any of these cases. Carlson has remarked in relation to these new observations that they appear to place the thyroids in the same category as the liver, that is to say, as organs very delicately balanced in relation to the local circulation, irrespective of any secretory nerves. The fact that the thyroids have a greater blood supply than any other organ in the body, and that relatively transient disturbances in the vascular conditions bring prompt responses in the way of "secretory discharge," deserves to be noted. This indicates, as Carlson reminds us, how difficult it is to decide whether one is dealing with vasomotor effects or specific secretory nerves in certain organs.

2. Watts, C. F.: Changes in Iodine Content of the Thyroid Gland Following Changes in the Blood Flow Through the Gland, Am. Jour. Physiol., 1915, xxxviii, 356.

COFFEE AND PROTEIN METABOLISM

Coffee is one of those dietary adjuncts which modern man has employed, like tea, alcohol, tobacco — and perhaps one ought to add the ubiquitous chewing gum — presumably to increase the pleasure of his existence quite independently of any need which they might serve in the organism. The demand for all of these products is created by an artificial rather than a natural appetite. Purveyors of the various articles of commerce have expended considerable effort and money to indicate on billboards and in other advertising spaces wherein the human mechanism is benefited and life made worth living by some particular brand of cigaret, whisky, tea, coffee, etc. There has at length arisen an amusing competition in which alcohol-free beverages, detannated or decaffeinated coffee, and even nicotin-free tobacco are extolled for the supposed advantages without the alleged defects of the respective products concerned.

In the midst of this extravagant bid for consideration, statements of merit or detriment are freely made as suits the case, and always with some semblance of scientific authority. On the one hand, it has been stated that coffee has a protein-sparing action on the body, and older literature is quoted in support of this contention. On the other hand, opponents of this view insist on the stimulating effect of coffee, and declare that it naturally tends to accelerate the metabolic processes. The facts are that many years ago experiments were reported to indicate that caffein, the most potent ingredient of coffee, depresses the protein metabolism. This was before the days of accurate balance experiments by which intake and output of food and excreta are carefully measured. The now classic experiments of Carl Voit,[1] like those of Hoppe-Seyler before them, demonstrated that there is no significant increase or decrease of protein destruction under the influence of coffee.

There has never been any serious occasion to doubt these negative results so far as any effect of coffee on protein metabolism is concerned. Nevertheless new experiments have been conducted on man in a somewhat different manner in the Polyklinik at Basel by Liwschitz.[2] The effect of ingested decoctions of coffee, chicory and caffein-free coffee, and of caffein itself on the rate of metabolism of large intakes of the protein casein were in these cases also ascertained to be nil.

Voit once remarked that the drinking of coffee and tea is sometimes defended on the supposition that they effect an economy of protein in the body. There is no evidence that they do this. He wisely concluded, therefore, that coffee is drunk because of its effect on the nervous system — and on this basis it must continue to be defended even today. The danger of propaganda, whether in health documents or in advertising circulars, lies in the perversion of truth. We need to know the truth about all of the fads and habits which are involved in our current mode of living. The truth will serve the cause better in every way. Enthusiasm should never be allowed to wander beyond the safe boundaries of demonstrable knowledge in matters of public or personal hygiene — or elsewhere.

THE RODENT PROBLEM OF CITIES

The connection between rodents and plague has led to the accumulation of information regarding the frequency of their association with human habitations, as well as their destructiveness. Studies have been made which throw light on the question of the number of parasites which have been permitted through carelessness to exist in the immediate neighborhood of man. Until these comparatively recent investigations, scarcely any one would have believed how large a number of rodents find a means of livelihood for

1. Voit, Carl: Untersuchungen über den Einfluss des Kochsalzes, des Kaffees, etc., 1860.
2. Liwschitz, O.: Ueber den Einfluss des Kaffees auf den Eiweissstoffwechsel beim Menschen, inaug. diss., Basel, 1914.

themselves in our cities and towns, especially those which have a series of docks and wharves. A special report[1] of plague eradication work at New Orleans, made by the surgeon in charge of the United States Public Health Service work at that point, contains rather startlingly illuminating facts concerning these parasites.

The total number of rodents captured up to November 13 of the past year runs up to 497,983. Some idea of the immense labor and the meticulous care required for thoroughness in sanitary work may be gathered from the fact that over 300,000 of these rodents had been examined up to the same date, and, though altogether only 265 cases of rodent plague were discovered, it is easy to understand how much of a danger for the dissemination of the disease these animals were. Until the actual report, it would have been almost impossible to believe that a city like New Orleans, with its half million rodents, actually harbored a larger population of rats and mice than it did of human beings.

New Orleans is probably no worse in this regard than most of the coast cities of the southern part of the country, at least, and it is probable that as careful a hunt for the creatures would reveal their presence in proportionate numbers even in many of the towns of the interior. It is scarcely necessary to call attention to the fact that this immense number of parasites, which so often get at food materials, constitute a distinct danger not alone as regards plague, though their direct connection with human diseases has been traced only with this great scourge. It is almost needless to say, too, that when existing in such immense numbers they are eminently destructive directly and indirectly, and represent one factor in the waste of food materials which makes for want in this country and is adding to the high cost of living. Undoubtedly what is taken to feed these rodents, or what is thrown out and serves them for sustenance, would keep from serious want many a human family that feels the pinch of lowered nutrition.

Coast cities like New Orleans, San Francisco, Seattle and some of the other towns on Puget Sound have been compelled to take up the problem of obliteration of their rodent parasites by the occurrence of plague. It would seem well worth while, however, for health authorities in other towns and cities to face this problem frankly before it becomes a source of actual immediate danger to health, because there is no doubt that the presence of these pests is extremely insanitary in many ways besides being seriously wasteful. If it should prove that the rodent population of most of our towns and cities, as in the case of New Orleans, was nearly if not quite as numerous as the human population, the significance and urgent importance of this problem would be readily understood.

1. Plague-Prevention Work, Pub. Health Rep., Dec. 3, 1915, p. 3552.

EXERCISE AND THE GROWTH OF ORGANS

Although physical exercise is universally admitted to have a profound and, as a rule, beneficial influence on the human body, an adequate physiology of exercise still remains to be written. Generalities and platitudes characterize most of the scanty literature on the real effects of muscular activity on the bodily structures and functions. We read about the marked influence of exercise on "constitutional vigor," the improvement of "general nutrition," the strengthening of the muscles, the increase in "tonicity," the development of "alertness of mind," and similar results which are about as undeniable as they are indefinable. A few of the functions can be studied directly, in man, in their relation to muscular exercise. The effects on the size and strength and working capacity of skeletal muscles can be observed and measured with some accuracy. The influences on the circulation and respiration also permit of reasonably direct determination. Beyond these, however, there are numerous organs and reactions which have as a rule escaped accurate consideration even in the scientific treatment of the influence of exercise.

In large measure the lack of more extensive data on the important topics related to the effects of exercise is due to the impossibility of suitable experimentation on man. The changes in the size of specific muscles have been measured, and alterations in blood pressure have been ascertained, but the influence of exercise on the size of internal organs can be determined only in indirect ways. The modification of the skeletal muscles like those of the arms and legs as a result of exercise are familiar. Severe and long-continued exercise is also recognized quite universally to lead to a hypertrophy of the cardiac muscle. The conjectures which must remain in reference to the modification of other organs, such as the liver, lungs, kidneys, etc., besides the heart, can be strengthened now from the results of extensive studies made at the Wistar Institute by Hatai[1] on albino rats. This species, which has been the subject of very extensive anatomic and physiologic investigation in recent years, has much in common with man in the correlation of its parts and the general features of its growth and functions. Comparisons are, therefore, not without value despite what might seem to the uninitiated as an enormous disparity of conditions. Hatai made determinations of various external measurements, visceral organs, ductless glands, etc., in comparable animals, some of which had been allowed to exercise vigorously in revolving cages while their companions belonged to a nonexercised group. It is very clear from the results that long-continued exercise (equivalent to a period of from seven to fourteen years in man) in the albino rat produces many striking alterations in the organs.

1. Hatai, S.: The Influence of Exercise on the Growth of Organs in the Albino Rat, Anat. Rec., 1915, ix, 647.

Among them, the following may be mentioned: In the animals allowed to exercise, the heart, kidneys and liver show an average excess of about 20 per cent. in size, while the spleen shows a similar amount of deficiency. The brain weight shows an average excess of 4 per cent., but no change has been noticed in the spinal cord. The ovaries gave an excess of 84 per cent., the testes, 12 per cent.; but the response of the hypophysis and suprarenals was variable. It is interesting to note that the weight of the heart and the amount of exercise are highly correlated. These results are striking, and make one wish that the investigation of such consequences of possible importance to health and hygiene might be extended to man. It is one of the problems of the popular field of physical education.

Current Comment

"THE LIE WITH CIRCUMSTANCE"

It is an axiom that the great bulk of the "patent medicine" business is fraudulent. False and misleading advertisements are the life-blood of the business. Before the public was as well informed on the "patent medicine" hoax as it now is, bald, blatant lies characterized nostrum advertising. As the public became more critical and as certain legal restrictions, state and federal, began to be operative, a change came over the "patent medicine" advertising "copy." The "lie direct" gave place to the "lie with circumstance," and today we find in this class of advertising lying by inference developed to a fine art. "Eckman's Alterative" is a fraudulent "consumption cure"; The Journal has said so a good many times and will continue to say so. It is one of the few products of this type that are sold, not on the mail-order plan, but through drug-stores and, presumably, because certain druggists are sharing in the blood money wrung from consumptives, this wretched nostrum has had thrown over it a cloak of quasi-respectability. Our readers have been shown[1] how, in advertising this preparation, the exploiters have quoted from The Journal on the subject of the use of calcium in tuberculosis. The advertisements are so designed that the average lay reader is likely to get the impression that The Journal has endorsed "Eckman's Alterative." One of the latest advertisements put out by the concern is headed in large type "Dr. Osler on Tuberculosis." This, too, will convey the idea that Osler may endorse the use of "Eckman's Alterative." How this style of advertising appeals to decent advertising men is pretty well expressed in a recent number of *Printers' Ink*, a journal devoted to the art of advertising. To quote in part:

> "'Dr. Osler on Tuberculosis,' is the headline of an advertisement that probably does quote exactly what Dr. Osler had to say about one phase of pulmonary disease. By careful wording, the inference is built up that the preparation advertised meets a condition named by the eminent physician in connection with the treatment of tuberculosis. Actually, the advertisement does not set up the claim that the patent remedy is a positive cure for tuberculosis, but its indirect claims are probably more appealing to victims of the Great White Plague than a bold, direct claim would be. The continuance of that kind of copy indicates that the ever-hopeful consumptives send on their dollars. . . . If there is anything more cruel and outrageous than consumption-cure advertising, the Schoolmaster has yet to hear of it. If the bald facts were not before us, it would be hard to believe that any publisher or advertising man would want to pay for his cigars or his golf privileges with dollars wrung from that source. How long, O Lord, how long?"

The opinion here expressed we believe to be the attitude of the modern, conscientious advertiser. If it is, the outlook for the public is as bright as the prospect for the fraudulent "patent medicine" business is dark.

1. The Journal's articles on the Eckman product have been reprinted in the pamphlet "Consumption Cure Fakes," which can be had, postpaid, for 10 cents.

THE ACTION OF SALICYLATES

Few drugs find more frequent application in the daily routine of practice at the present time than the salts and other derivatives of salicylic acid. Most persons who prescribe these products would, we believe, be at a loss to offer an approximately tenable theory of their pharmacologic behavior. Salicylic acid itself is an antiseptic comparable in many ways with its chemical relative, phenol or carbolic acid. It is irritating to tissues and it functions as a protoplasmic poison. On the other hand, the salts of salicylic acid do not exhibit equally strong disinfectant or irritant features. Nevertheless the current descriptions of the therapeutic potency of salicylates still suggest that these drugs "are used to produce a degree of germicidal action within the body, and their presence is specifically detrimental to the growth and development of the species that lead to the production of rheumatism, in which disease the salicylates have their greatest therapeutic application."[1] It is an observation familiar to laboratory investigators that salicylates provoke a significant increase in the excretion of uric acid.[2] This fact has formed the basis for the exploitation of proprietary "cures" for rheumatism as well as for the clinical treatment of the disease. Fine and Chace,[3] of the New York Post-Graduate Medical School and Hospital, were the first to show by the modern methods of accurate blood analysis that this well-known increase in the urinary output of uric acid is accompanied by a commensurately lowered concentration of uric acid in the blood comparable to what has been observed after administration of atophan (phenyl-quinolin-carboxylic acid). This fact has further been verified by Denis[4] at the Massa-

1. Quoted from Greene, C. W.: Handbook of Pharmacology, New York, 1914, p. 247. A similar view is intimated by Meyer, H., and Gottlieb, R.: Die experimentelle Pharmakologie, Vienna, 1911, p. 477, when they say: "The effect of salicylic acid in acute articular rheumatism is in all probability an etiotropic one. This cannot be asserted positively, however, as knowledge of the cause of the disease is wanting" (Auch die Wirkung der Salicylsäure bei akuten Gelenkrheumatismus ist aller Wahrscheinlichkeit nach eine ätiotrope. Mit Bestimmtheit kann dies freilich nicht behauptet werden, da die Kenntnis des Krankheitserregers fehlt).

2. Hanzlik, P. J.: The Salicylates: Annual Report of the Therapeutic Research Committee of the Council on Pharmacy and Chemistry, Am. Med. Assn., 1914.

3. Fine, M. S., and Chace, A. F.: Proc. Soc. Exper. Biol. and Med., 1915, xii, 95; Jour. Biol. Chem., 1915, xxi, 371.

4. Denis, W.: The Influence of Salicylates on the Elimination of Uric Acid and Other Waste Products from the Blood, Jour. Pharmacol. and Exper. Therap., 1915, vii, 225.

chusetts General Hospital. Small doses of sodium salicylate or acetylsalicylic acid are apparently far less effective in reducing the blood content of uric acid than are quantities (from 6 to 8 gm. of salicylate) which approach the limits of therapeutic comfort. It is well known that the augmentation in the output of uric acid under the action of salicylates disappears when the drug is discontinued and may be reproduced by renewal of the dosage. Theobromin sodium salicylate, quinin and colchicum do not alter the concentration of uric acid of the blood. It is important to appreciate clearly this now well-established effect of the salicylates, particularly when an examination of the blood is being made as a diagnostic test for gout, and thus when the failure to take into account any simultaneous medication with salicylates or acetylsalicylic acid (aspirin) might easily deceive the observer. The increased output of uric acid in the urine following salicylate administration is clearly due to a lowered threshold value of the kidney for circulating urates. Denis ventures the further assumption that the excretion of other waste products as well may be facilitated. Such being the case, she adds, it may well be that the beneficial effects resulting from the use of salicylates in acute rheumatic fevers may, in part at least, be due to the power enjoyed by this class of drugs of increasing kidney permeability, thereby facilitating the rapid and more or less complete excretion of the as yet unknown toxins which produce symptoms of these diseases.

THE CONSTITUTION AS A CLOAK

New York City's ordinance regulating the sale of "patent medicines" went into effect the first of this year. It requires that the names (not quantities) of all potent ingredients in "patent medicines" shall be either printed on the label or given, in confidence, to the Department of Health. While many reputable wholesale druggists and dealers in "patent medicines" are complying with the law, the "patent medicine" exploiters generally are fighting it. We understand that applications have been made for a temporary injunction against the enforcement of the ordinance by at least two New York drug concerns. The Proprietary Association — the "patent medicine" combine — is, of course, behind the action of these individual concerns. The grounds on which the "patent medicine" interests are attacking the ordinance is that it is unconstitutional! The argument is a pretty one. A federal law, which has been in effect nine years, requires manufacturers of "patent medicines" to print on the label not only the names but also the quantities of certain specified ingredients — and nobody has even suggested that this was unconstitutional. The principle may be illustrated thus: If a man puts up a headache powder composed of acetanilid, sodium bicarbonate and caffein he has, under the federal law, to declare the presence and quantity of acetanilid — which he does without a whimper. When, however, he is asked to declare the presence — not amount — of caffein and baking soda, he appeals to the Constitution of the United States for protection. Or again: If a man wishes to furnish suffering women in dry territories with a "tonic" consisting of alcohol and the extractives from a few innocuous and long discarded herbs, he does not consider that his "property" has been taken from him "without due process of law" because it is necessary to declare the presence and amount of alcohol; but should he have to give the names of the weeds he uses for making his tonic he immediately cries to high heaven that the Fourteenth Amendment of the Constitution of the United States has been violated. It is a curious fact that whenever a particularly profitable fraud is about to be restricted by legal enactment, the cry at once arises: Un-American! Unconstitutional!

TYPHOID FOLLOWING TYPHOID VACCINATION

Considerable publicity has been given to the fact that several cases of typhoid fever occurred last fall among students at Delaware College, Newark, Del., shortly after they had received protective inoculation against typhoid fever. On inquiry of the president of Delaware College we are informed that in 1915, 106 men and 22 women were inoculated. Three of the young men subsequently developed typhoid fever, one after the first inoculation, one after the second, and one after the third. Illness in the first case occurred in "less than ten days after the inoculation"; illness in the second case, "in less than ten days after the second inoculation," and in the other, "almost immediately after the third inoculation." It is stated that all these young men came from localities in which there is or has been typhoid fever. From the facts as indicated, it appears possible that the infection may have been received shortly before or during the inoculation period. Exact dates as to day of onset and days of inoculation are not given, the source of the vaccine is not stated, and apparently no detailed investigation of probable sources of infection has been made. It is plain that instances of this sort are employed to discredit the practice of typhoid vaccination, and it is much to be wished that all such occurrences should be investigated and a careful statement of facts placed on record. Newspaper reports of such happenings which reach us from time to time, and the experience recently described by Sawyer,[1] show the need for all the information we can obtain regarding the practical application and value of antityphoid inoculation.

THE WEAKNESS OF THE STRONG

THE JOURNAL has repeatedly called attention to the dangerous trend of modern competitive athletics, especially to the effect of such competition on the heart. The sudden death last week from pneumonia of a famous all-round athlete is sad confirmatory evidence of the basis for such warning. The ordinary man attacked by dread pneumonia has a "fighting chance"; the great athlete whose heart has survived the battering wear of strenuous athletic struggle falls a sudden victim to the attacks of this "captain of the men of death."

1. Sawyer, W. A.: The Efficiency of Various Antityphoid Vaccines, THE JOURNAL A. M. A., Oct. 23, 1915, p. 1413.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ILLINOIS

Knox County Hospital.—The almshouse committee of the board of supervisors of Knox County has established a hospital at the County Almshouse, Knoxville, which will be in charge of Miss Nannie Campbell.

Personal.—Dr. Martin W. Cushing, formerly physician of the State Penitentiary, who has been ill with erysipelas in St. Joseph's Hospital, Joliet, has left the hospital convalescent.——Dr. R. P. Grim, Canton, underwent operation, December 13, in Mercy Hospital, Chicago, and is now said to be convalescent.——Dr. George N. Lucas, formerly of the staff of the Elgin State Hospital, has accepted a position on the staff of the Wilgus Sanatorium, Rockford.——Dr. Emil Lofgren, Rockford, is ill at his home with erysipelas.——Dr. Hamilton T. King, Joliet, who has been threatened with pneumonia, is reported to be convalescent.

School for Health Officers.—With the beginning of the new year, the enlarged service of the State Board of Health will be fully organized on a permanent basis. This increased service will be brought about by the employment of district health officers, the state epidemiologists and the newly organized Bureau of Sanitary Engineering. For district health officers service the state has been divided into five districts, each of which will have its own full time health officer and each of these officers will be expected to establish in his district a conference or school for health officers to meet at least twice a year and to carry out programs or papers and discussions of such character as will serve to enlighten local health officers as to the latest and most approved methods of public health administration. There will also be held an annual conference of all the health officers of the state. At these annual meetings it is the purpose of the board to bring sanitarians and health authorities of prominence to speak on special subjects.

Chicago

Morbidity.—January 2 it was reported that there were 2,035 patients presented for treatment at the County Hospital, chiefly on account of the prevailing epidemic of influenza. This is said to be the largest number handled in one day since the opening of the Cook County Hospital.

Osteopath Fined.—It is reported that Daniel C. Ward, an osteopath of Chicago, was fined $100 and costs for practicing medicine without a license. The evidence included the alleged fact that he used the title of "Doctor" on his office door, on his business stationery, and in the telephone book and in the city directory, without holding a physician's license.

Statistics of Cook County Hospital.—According to the report of the Warden of Cook County Hospital, 61,622 patients were accommodated during 1915. Of this number, 28,719 were cared for in the main hospital, while the others received minor attention; 3,286 were insane patients in the psychopathic hospital, and 21,457 applicants for hospital attention were rejected.

Leper in County Jail.—George O. Hartman, the St. Louis leper, who escaped two years ago from the Leprosy Colony at Koch, Mo., is isolated in a wing of the Cook County jail. Since his escape from the leper colony, Hartman has been working at various trades, and in November opened a restaurant in Chicago and also kept a rooming house. He was arrested to answer to an indictment for robbery, and on the usual physical examination, the disease was discovered.

Coroner's Inquests.—According to the annual report of the Coroner of Cook County, there were 6,235 unnatural deaths during 1915, as compared with 5,591 in 1914, the 812 drownings in the *Eastland* disaster being given as the cause of the increase. Because of the *Eastland* disaster the greatest of deaths from any single cause was from drowning. Gas poisoning caused the death of 242 persons. Other poisons killed 109 persons. Automobiles killed 225, as compared with 143 the year before. During 1915 fifty-eight children were victims of burns and scalds, as compared with 135 during the previous year.

INDIANA

Chiropractor Fined.—Pearl B. Winters, a chiropractor, is reported to have been fined $40 and costs in the circuit court for practicing medicine without a license.

Gorgas in Indianapolis.—Major-General William C. Gorgas, Surgeon-General, U. S. Army, is to be the principal speaker at the joint convention of the Indiana Engineer Society and the Indiana Sanitary and Water Supply Company, to be held at the Claypool Hotel, Indianapolis, February 2 to 5.

Personal.—Dr. William P. Harter, Anderson, who has been seriously ill with pneumonia, is reported to be convalescent.——Dr. Daniel Yingling, Huntington, fell December 23, fracturing his left hip.——Dr. Clarence H. Mead, health officer of Bluffton, who has been ill with diphtheria, is reported to be convalescent.

Hospital Notes.—The new King's Daughters Hospital at Madison, erected at a cost of $40,000, was dedicated December 19. It takes the place of the old building which the King's Daughters have supported for the last fourteen years.——The Giorgi Hospital, Gary, was damaged by fire, recently, but no one was injured.

Tuberculosis Notes.—The Lake County Medical Association has petitioned the county commissioners to make an immediate appropriation for the establishment of a tuberculosis sanatorium for the county. The petition has been signed by several thousand voters. It is proposed at present to have only an executive building erected with tents and cottages for the patients.——Work has already been commenced at Camp Fort Recovery, the Allen County Tuberculosis Sanatorium, on three additional cottages which, when finished, will make the total number fifteen. Patients will be removed to the new buildings as soon as they are ready for occupancy.

IOWA

Fire at Serum Laboratory.—Fire in the Waterloo Serum Laboratories November 30 caused a loss estimated at $10,000.

Hospital Burns.—The Bellevue Hospital, Muscatine, was burned December 22, with a loss of about $5,000. The patients were removed without casualty.

Smallpox Closes School.—The Iowa City Board of Education has ordered the Third Ward School closed temporarily on account of the appearance of smallpox.

New Officers.—The new officers of the Monona County Medical Society are: president, Dr. Emil C. Junger, Soldier; vice president, Dr. M. O. Stouch, Whiting, and secretary-treasurer, Dr. Frederick S. Spearman, Whiting.

Memorial Hospital.—W. M. Greeley, president of the Union National Bank of Ames, is preparing to build a hospital in memory of his wife. The building will cost $15,000, will be of brick, fire-proof, three stories and basement, and will contain thirty rooms and two wards.

State Board Publications.—Two most notable publications have just been issued by Dr. G. H. Sumner, secretary of the State Board of Health. The first is a nurses' bulletin which, in addition to a number of articles, contains a complete list of nurses of the state, and the second is a poster on typhoid fever, illustrating the various means by which typhoid infection is carried.

Keokuk Physicians Organize.—At a meeting held at the Hotel Iowa, Keokuk, December 10, the Physicians' Club of Keokuk was organized with an initial membership of twenty-six, and the following officers were elected: president, Dr. Robert M. Lapsley; vice presidents, Drs. Lee M. Coffey and Henry A. Gray; secretary, Dr. Frank M. Fuller, and treasurer, Dr. Charles A. Dimond.

Personal.—Dr. Russell M. Young, Sidney, sailed for London, December 21, where he expects to spend a year in the study of diseases of children.——Dr. George F. Severs, Centerville, was seriously injured by a fall on a slippery sidewalk, December 21.——Dr. Wilton McCarthy, Des Moines, who was injured some time ago in an automobile accident, has recovered and resumed practice.——Dr. and Mrs. Albertus J. Burge have left Iowa City for Mason City, where Dr. Burge has accepted a position on the surgical staff of the new Mercy Hospital.——Dr. Rex V. Henry, Hedrick, was operated on for appendicitis, December 8.——Dr. John B. Heles, Dubuque, sustained a fracture of the clavicle in a collision between his automobile and a street car December 1.

——Dr. Frank C. Carle, Garrison, was operated on recently for hernia in Iowa City and is making a good recovery.

KENTUCKY

The Vance Memorial.—Up to December 21, $5,732.00 had been contributed to the Ap Morgan Vance memorial, which is to be used as a permanent endowment fund for the Children's Free Hospital.

Hospital Notes.—It is proposed to erect a modern, fireproof hospital in Danville to cost $40,000. Of this amount $22,500 has already been raised and a lot on which to erect the building has been donated.

Disposal of Lexington Sewage.—Passed Asst. Surg. Wade H. Frost, U. S. P. H. S., in charge of the Ohio River investigation, and Sanitary Engineer H. R. Crohurst, U. S. P. H. S., have been directed to proceed to Lexington to study local conditions and advise in regard to proposed plans for sewage disposal of the city.

MARYLAND

Personal.—Dr. William H. Welch, president of the board of directors of the Rockefeller Institute for Medical Research, arrived in San Francisco from China, December 27.——Dr. William J. Coleman, superintendent of the University Hospital, fractured and dislocated his finger in a struggle with a violently insane patient, December 17.——Christmas tableaux were given December 21, at Mount St. Agnes' College, Mount Washington, in honor of Dr. William J. Todd, who has been medical adviser of the college for more than a quarter of a century.

Urges United States Quarantine.—Surg. James A. Nydegger, in charge of the local United States Public Health Service, has strongly indorsed the plan for the federal government to take over the quarantine station at Baltimore. New York and Baltimore are now the only Atlantic ports that retain control of the quarantine. It is planned, in the event that the federal government takes over the station, to make some arrangement with the government by which smallpox patients can be received at quarantine, as there is no other hospital at Baltimore to receive such cases.

Additions to Staff.—Dr. C. Reid Edwards, Baltimore, has been appointed superintendent of the James Lawrence Kernan Hospital and Industrial School for Crippled Children, and Dr. Louis A. Buie, resident surgeon. In the report of the surgeon-in-chief, Dr. R. Tunstall Taylor, there are recorded 21,938 days of hospital care given crippled children from Oct. 1, 1914, to Oct. 1, 1915. Two hundred and thirteen children were treated in the hospital, 152 were operated on, requiring 241 different operations; 5,016 dispensary visits were paid, and 1,024 visits to the homes made by the Social Service nurses. More than 300 are on the list of patients.

MONTANA

Personal.—Dr. George J. Marquette, Deer Lodge, has been appointed coroner of Powell County, to succeed O. B. Roberts, removed.——Dr. Daniel J. Donohue, Glendive, has located for practice in Butte.

New Railway Hospital at Livingston.—It is announced that a branch hospital will be established by the Northern Pacific Beneficial Association at Livingston and it is planned to use the Livingston Hospital on South Third Street for this purpose.

Surgical Institute at Lewistown.—Local physicians headed by Dr. Fred F. Attix are working on a plan to establish a medical and surgical institute at Lewistown with provision for laboratory work. The building with equipment will cost $40,000.

Chiropractor Tried.—Charges are reported to have been filed by the Montana State Board of Medical Examiners against W. R. Hopkins, a chiropractor in Helena, who is alleged to have been tried last May in the district court and found guilty, but filed an appeal which is still pending.

Tuberculosis Colony Planned.—Dr. Thomas C. Witherspoon, Butte, suggests a plan of colonization against tuberculosis. With a contribution of $1 a month from each miner in Butte a large tract of ground could be purchased which could be divided into small farms and used as homes for the families of men suffering from tuberculosis. The factors necessary for the success are, an amount of ground which can be made reasonably productive; the presence of a physician in the immediate neighborhood who is interested in the work, and sufficient capital to provide housing for the patients and their families.

NEW YORK

Plan to Enlarge Hospital.—A fund of $22,000 has been subscribed for an addition to the Southampton Hospital, at Southampton, L. I. Work will be begun in the near future.

Personal.—Dr. H. H. Mitchell, Canisteo, has returned after six months' work with the Red Cross in Serbia.——Health Commissioner Francis E. Fronczak of Buffalo injured his leg severely while boarding a street car, December 7.

Tribute to Trudeau.—At the annual meeting of the trustees of the Adirondack Cottage Sanatorium, December 21, Dr. Walter B. James, New York City, was elected president, Dr. Edward R. Baldwin, Saranac Lake, vice-president; Mr. George S. Brewster, secretary-treasurer, and Dr. Frederick H. C. Heise, Trudeau, resident physician. The trustees adopted a resolution paying tribute to the memory of Dr. Edward L. Trudeau and directing that this tribute be spread on the records of the meeting.

Chiropractor Denounced.—R. D. Lytel, a chiropractor at Rochester, is reported to have been denounced recently at a coroner's inquest for malpractice on the deceased, a man named Wilkinson. Wilkinson, according to testimony, had been ill for some months and was persuaded to go to the chiropractor who placed him on a table and with his knee made what was called a "spinal adjustment." It was stated that paralysis from the waist down followed this treatment, and physicians who were then called found that the patient's back had been broken. The autopsy showed that the patient had been suffering from a gastric ulcer and peritonitis. The health commissioner of Rochester is quoted as saying: "For a chiropractor to have worked on this man in the condition he was in, was nothing short of murder."

New York City

Personal.—Dr. Earl B. Downer, who has been in Serbia for several months in connection with the American Red Cross, reached New York, December 15, on the *Espagne*. Dr. Downer was in Belgrade during the bombardment of the city.

Police Psychopathic Laboratory.—The police commissioner of New York, after two months experimental work, has established a laboratory for the purpose of examining prisoners so as to determine which among them are mentally defective. The laboratory will be situated at police headquarters and will be under the direction of Dr. Louis Bisch, who has been conducting the experimental work.

Department of Health Labels Patent Medicines.—The "Goldwater Registry Law," requiring that all patent medicines have a proper declaration label on the outside or that the seller declare the contents to the board of health, went into effect on Jan. 1, 1916. Several days before this date 300 inspectors from three bureaus of the department of health started to canvass 2,494 drug stores in Greater New York, and place labels on 5,000,000 packages of patent medicines. Druggists have been urged to give inspectors their cooperation in enforcing this ordinance.

Prize for Public Health Work.—The jury of awards has just published the official list of prizes awarded at the Panama-Pacific Exposition. Among these is the Grand Prize to the Department of Health of New York City for its work in health and sanitation. Among other first prizes which this department has received are the first prizes at the World's Fair in Chicago, the Louisiana Purchase Exposition in St. Louis, and the International Congress on Hygiene and Demography in Washington. The department of health is the only individual department in the city to receive a grand prize.

Increased Death Rate from Influenza and Pneumonia.—The death rate from influenza and pneumonia has taken a jump. According to figures compiled by the department of health the noteworthy feature of the mortality report for the week ended December 25 is the abnormally high death rate from influenza and pneumonia. The number of deaths from influenza is five times as many as during the corresponding week of last year, and twice as numerous as the deaths from this cause during the previous week. There were nearly 200 more deaths from pneumonia last week than during the corresponding week of 1914. If we estimate that the mortality of pneumonia is about 20 per 100, there were about 2,000 cases of pneumonia in the city last week.

Reorganization of Cumberland Street Hospital.—Commissioner of Charities John A. Kingsbury has requested the resignation of the fifty-seven members of the medical staff of the Cumberland Street Hospital, Brooklyn. This action

is not to be considered as casting any reflection on the reputation or efficiency, but is the result of a plan to do away with a bulky medical staff and to substitute a board of men who will devote their whole time to the interests of the hospital. Under the new system the medical staff will be divided into four departments as follows: department of surgery, under the charge of Dr. J. Hubly Schall; department of medicine, Dr. E. Rodney Fiske; department of obstetrics, Dr. Herbert C. Allen, and department of gynecology, Dr. J. Francis Ranken. Commissioner Kingsbury has announced that he is considering a plan for a similar reorganization of all the hospitals directly under his control. The chief feature of the proposed reorganization is the substitution of paid chiefs of departments for the large medical boards of nonsalaried physicians and surgeons

Adenoid and Tonsil Operations in Schoolchildren.—Several years ago, because of lack of adequate facilities for the operative treatment of diseased tonsils and adenoids, the department of health established a number of clinics where schoolchildren needing operative treatment could be suitably cared for. Nearly one third of all the operations for tonsils and adenoids performed on schoolchildren during the last three years have been performed in the clinics of the department. In the judgment of the board of Estimate and Apportionment, the time has come when the dispensaries and hospitals should take care of this work and accordingly no provision is made for the maintenance of these clinics. This matter has been taken up by the Associated Out Patient Clinics, the State Charities Aid Association and the Public Health Committee of the New York Academy of Medicine who have called the attention of the various clinics to this subject. These organizations are agreed: (1) that all adenoid and tonsil operations on children should be done under general anesthesia; and (2) that hospitals where these operations are performed should be equipped to keep their patients for at least eighteen hours after the operation.

NORTH CAROLINA

Personal.—Dr. Gaillard S. Tennent, Asheville, after several weeks in the ophthalmic clinics in the east, has returned and resumed practice.——Dr. Julius A. Dosher, Southport, has been reelected physician of Brunswick County.

Buncombe County Physicians Elect Officers and Dine.—The twentieth annual meeting and banquet of the Buncombe County Medical Society was held in Asheville December 21, with more than sixty present. Dr. M. Hall Fletcher, Asheville, president of the Medical Society of the State of North Carolina, was the guest of honor. Dr. C. Hartwell Cocke, officiated as toastmaster. At the annual meeting the following officers were elected: president, Dr. Charles L. Minor; vice president, Dr. Lewis W. Elias, and secretary-treasurer, Dr. Gaillard S. Tennent.

District Society Meetings.—The Ninth District Medical Society held its annual meeting in High Point and elected Dr. John Bynum president, and Dr. Wingate M. Johnson, secretary, both of Winston-Salem. The 1916 meeting of the society will be held in Winston-Salem.——The annual meeting of the Seventh District Medical Society was held in Rutherfordton December 13 and 14, and the following officers were elected: president, Dr. Montgomery H. Biggs, Rutherfordton; vice president, Dr. Henry D. Stewart, Monroe, and secretary-treasurer, Dr. Silas R. Thompson, Charlotte. Monroe was selected as the next place of meeting.

OKLAHOMA

Addition to Oklahoma City Hospital.—A state-wide campaign has been inaugurated to raise funds with which to build a four-story addition to St. Anthony's Hospital, Oklahoma City, and to establish a medical research laboratory. The plans under consideration will involve an expenditure of from $100,000 to $125,000.

Central Oklahoma Physicians to Meet.—The annual meeting of the Central Oklahoma Medical Association will be held in Enid, January 11. Dr. LeRoy Long, dean of the medical school of Oklahoma University, will deliver an adress on "Oklahoma's Medical Schools," and Dr. John W. Duke, state health commissioner, will speak on "Small Town Sanitation."

Higher Entrance Standard Adopted.—A letter from the president of the University of Oklahoma states that two years of collegiate work will be required for admission to the school of medicine of that university after Jan. 1, 1917, this college work to include courses in physics, chemistry, biology and French or German. This standard has been aproved by the State Board of Education of Oklahoma.

OREGON

Personal.—Dr. Harry A. Beauchamp has been elected mayor of Stayton.——Dr. R. E. Lee Steiner, Salem, superintendent of the Oregon State Hospital for the Insane, has been unanimously reappointed for a term of four years.

Portland Physicians Elect.—At the annual meeting of the Portland City and County Medical Society held in Portland, December 15, Dr. George S. Whiteside was elected president; Dr. Alvin W. Baird, vice president; Dr. J. Guy Strohm, secretary, and Dr. Katherine C. Manion, treasurer, all of Portland.

Medical Buildings for University Assured.—Four business men of Portland have contributed $25,000 toward the establishment of new buildings for the Medical Department of the University of Orgeon, Portland. This makes available the $50,000 appropriated by the state. The officials of the college now propose to begin a campaign for an additional $100,000.

State Board Election.—At the annual meeting of the State Board of Health in Salem, December 20, Dr. Willis B. Morse, Salem, was elected president; Dr. Alvane C. Seely, Roseburg, vice president; and Dr. David N. Roberg, Portland, secretary and registrar (reelected). The board endorsed the action of the State Board of Health of California in appointing a committee to look into conditions in that state with a view to urge the government to establish a leprosarium.

PENNSYLVANIA

Personal.—Dr. Samuel G. Dixon has been elected president of the Academy of Natural Sciences, Philadelphia, for the twenty-first time and executive curator for the twenty-fifth time.——Dr. Edward Ryan, Scranton, who has been working against typhus in Serbia, has reached Geneva on his way back to the United States.——Dr. W. Knowles Evans has been appointed supervisor of health and Dr. Joseph R. T. Gray, Jr., city bacteriologist of Chester.——Drs. John S. Monohan, William N. Stein and Arthur J. Burkheiser have been appointed by the Philadelphia and Reading Coal and Iron Company to care for their injured from the collieries in Shenandoah and Shenandoah Valley, under the new compensation law which took effect January 1.

Philadelphia

Deaths—During the week ended Dec. 30, 1915, there were 971 deaths in the city, nearly one half of which were due, it is said, to influenza and pneumonia, the prevailing infections. December 27 there were 262 deaths reported.

University of Pennsylvania Men in the War Zone.—The record of the University of Pennsylvania reports that more than 600 students and alumni of that institution are either fighting or doing medical work in the war zone. Drs. Ralph H. Luikart and Clarence S. McKee, recent graduates of the institution, have been on duty in the typhus epidemic in Serbia.

Personal.—Dr. R. Norton Downs was elected president of the board of supervisors of Horsham Township at a recent meeting.——Dr. Charles B. Penrose, who was recently appointed a member of the Fairmont Park Commission to fill the expired term of the late Peter B. Widener, is reported to be seriously ill with bronchopneumonia at the Hotel Belvidere, Baltimore.

TENNESSEE

Influenza.—December 14 it was reported from Memphis that there were 2,500 pupils absent from the schools on account of an epidemic of "grip."

Pellagra Hospital.—At Chattanooga architects have been employed by the city to draw up plans and specifications for a hospital for the treatment of pellagrous patients. The hospital will not be elaborate, but comfortable and well equipped for the purpose. It will cost about $5,000.

Personal.—Dr. Reuben S. Toombs, Memphis, is reported to be seriously ill with pneumonia at his home.——Dr. John Minor Blackford, Rochester, Minn., read a paper before the Chattanooga and Hamilton County Academy of Medicine, December 10, on "Newer Cardiac Pathology and Diagnosis."

Hospital Notes.—At a meeting of the Chamber of Commerce at Clarksville, December 9, it was decided to establish

a hospital in Clarksville with a capital stock of $5,000. Nearly one half of the amount was subscribed at or immediately after the meeting.——The $200,000 campaign for the Galloway Memorial Hospital, Nashville, has been postponed until April, 1916.

Tuberculosis Notes.—The new tuberculosis sanatorium for Nashville and Davidson County, the erection of which was commenced last March, is now completed and ready for occupancy. It is a three-story structure, and on the first and second floors there are sixty beds available for patients, while the nurses will be accommodated on the third floor. ——The City Council of Memphis and the Shelby County Commissioners have agreed to erect a joint tuberculosis hospital of sufficient size to care for all patients in the county. The details were fixed at a meeting January 3.

TEXAS

Honors Memory of Member.—At the regular meeting of the Harris County Medical Society at Houston, December 23, resolutions were adopted regarding the late Dr. Forrest B. Smith.

Malarial Survey.—Surg. Rudolf von Esdorf, U. S. P. H. S., will come to Dallas early in the spring to make a malarial survey of the city and to give practical advice on the extermination of the mosquito.

State Board to Meet in Temple.—The State Board of Medical Examiners at its recent meeting in Dallas voted to meet in Temple, March 1, for reorganization and the election of officers. Examinations will be held in San Antonio after the meeting in Temple.

Surgical Society Incorporated.—The Texas Surgical Society has been incorporated at Houston without capital stock by James E. Thompson, W. Burton Thorning and John T. Moore. The purpose assigned is cultivation and improvement of the science and art of surgery.

Tuberculosis Items.—The members of the Texas Tuberculosis Commission have awarded a contract for the construction of four new buildings at the State Sanatorium, Carlsbad, for $57,400. Two of the buildings are to be dormitories, a third a subsistence building and the fourth a dairy barn.——The city council of Fort Worth has appropriated $8,000 toward the construction of eight cottages for tuberculosis at the Tarrant County poor farm.

Typhus Fever.—It is reported that typhus fever has reached Texas from Mexico. December 24 three cases were reported at Laredo, where hundreds of Mexican refugees have gathered. The United States Public Health Service has detailed special agents to all towns along the border, and at these places a rigid quarantine will be established. Dr. C. C. Pierce of the Public Health Service has been ordered from San Francisco to Laredo to take charge of the situation. The Red Cross has taken up the question of attempting to render assistance should it be needed. The State Board of Health of Texas is likewise alive to the situation and orders have been issued to all quarantine stations to enforce the twelve-day detention rule on all persons coming to Texas from the infected districts and from Mexico, and to disinfect and fumigate all baggage and railroad cars. State Health Officer Collins visited Laredo December 24, and gave instructions for the enforcement of quarantine and for the care of the patients there.

CANADA

Examination of Cooks and Waiters.—Dr. Charles J. Hastings, M. O. H., Toronto, as a means of safeguarding the purity of the food given to people who eat in public dining rooms, has ordered that the 2,000 odd cooks and waiters in Toronto hotels and restaurants shall be physically examined twice a year to ascertain that they are free from disease.

Care of Defectives in Ontario.—To a deputation which recently waited on the provincial secretary of Ontario in connection with the care of defectives, the Hon. W. J. Hanna declared that to handle in an adequate manner the problem of the feebleminded in that province would require a capital expenditure of $1,000,000. He favored the matter being undertaken in a provincial rather than in a municipal way. The deputation, which included Dr. Charles K. Clarke of the Toronto General Hospital, and Dr. Helen MacMurchy, assistant inspector of public institutions, recommended classes for backward children in the public schools, a register of all mental defectives in the city, an education clinic where medical investigation might be carried on, an institution of the farm colony type at a cost of $25,000 to $50,000 per cottage of fifty inmates. It was pointed out that there were 83 mentally defective children in public homes in Toronto and others in the industrial schools. It was estimated by the chief inspector of Toronto that no fewer than 250 to 300 mentally defective children were in attendance in the public schools in Toronto.

War Personals.—Surg.-Gen. Carleton Jones, Ottawa, now on active service, has been knighted by King George V.—— Lieut.-Col. John D. Courtenay, Ottawa, is now in command of the Canadian Eye and Ear Hospital at Folkstone, England; Maj. Perry G. Goldsmith, Toronto, is second in command, and Captain Bell, Winnipeg, adjutant. Among other Canadian medical men with the hospital are Major Laviolette, Montreal; Captain Courtenay, Ottawa; Captain Taylor, Port Arthur; Captain Harrison, Hamilton, Ont.; Captain Hunter (consultant), Winnipeg, Man.——George G. Nasmith, Ph.D., chief of the city laboratories, Toronto, and who was sanitary officer with the first Canadian Overseas Force, now in Toronto on furlough, appears among the honor roll of Sir John French. Others of the medical corps also in the honor roll are: Colonel Bridges, Col. Murray MacLaren, St. John, N. B.; Major McKinnon, Major Young, Captain Gibson, Captain Macdonald, Captain Smith and Lieutenant Hart.—— Surg.-Gen. James A. Roberts is in command of the University of Toronto Base Hospital, which is situated 5 miles from Saloniki on the road to Monastir. Owing to the severity of the weather, considerable suffering has been occasioned the unit, but all are well and cheerful. As soon as the hospital tents were pitched they admitted forty to fifty patients; those numbers were rapidly increased and the unit has been caring for, on the average, between 400 and 500 patients. Recently, however, owing to the severity of the weather, many cases of frost bite have been admitted and the numbers have been in the neighborhood of 1,300.——Dr. Dr. Robert M. Simpson, Winnipeg, Man., prominent in public health medicine, chairman of the Manitoba Board of Health for a number of years, and at one time president of the American Public Health Association, appeared in the Bow Street Court, London, England, charged as a fugitive from justice in the province of Manitoba. Dr. Simpson is alleged to have received $100,000 of the moneys of the province and to have used the same for election purposes. The charge which Dr. Simpson, who has been serving his country in France, is under, is claimed by him to be a purely political one.——Dr. James D. Macdonald, liberal candidate for Muskoka, Ont., is to be medical officer of the One Hundred and Twenty-Second Battalion, with the rank of captain.——Capt. James Moore, Listowel, Ont., has been transferred to the Thirty-Third Battalion now at Quebec, to succeed the late Maj. A. V. Beecher, London, Ont., as medical officer.——Dr. James Roberts, M. O. H., Hamilton, Ont., is home from the Dardanelles after many months' service. He has leave of absence for one month. Dr. Roberts says sanitary conditions at the Dardanelles are frightful. Every one of the 120 men in his unit suffered from typhoid and dysentery within a short time of their arrival at the Straits. ——Lieut.-Col. Charles A. Peters, Montreal, who has been officially authorized to raise and command No. 9 Field Ambulance to be recruited with the Fourth Canadian Division, has secured the services of Maj. Alfred T. Bazin, Montreal, consulting surgeon at the Montreal General Hospital, to be second in command.

GENERAL

Northwestern Surgeons Meet.—At the annual meeting of the Chicago and Northwestern Railway Surgeons' Association, held in Rochester, Minn., December 10 and 11, Dr. C. W. Hargens, Hot Springs, S. D., was elected president.

Seaman Medal Awarded.—The Louis Livingston Medal for progress and achievement in the promotion of hygiene and the mitigation of occupational diseases, has been awarded this year by the American Museum of Safety to William A. Fairburn, New York City.

Southwestern Physicians Meet.—At the annual meeting of the Southwestern Medical and Surgical Association held in El Paso, N. M., December 11, Dr. Abraham G. Shortle, Albuquerque, N. M., was elected president, and Drs. William W. Watkins, Phoenix, Ariz., and Robert E. McBride, Las Cruces, N. M., were elected vice presidents.

Canal Zone Medical Society Meeting.—The Medical Association of the Isthmian Canal Zone held its annual meeting, December 16, and elected the following officers: president, Dr. Lewis B. Bates; vice president, Dr. Herbert C. Clark,

and secretary-treasurer, Dr. Frazer F. Monroe, all of Ancon. The next meeting will be held in Ancon, Dec. 16, 1916.

Northern Pacific Surgeons Hold Meeting.—The Northern Pacific Surgical Association at the annual meeting in Spokane, December 17, elected the following officers: president, Dr. James R. Yocom, Tacoma; vice presidents, Drs. George S. Gordan, Vancouver, B. C., and G. L. Whiteside, Victoria, B. C.; and secretary-treasurer, Dr. Edward A. Rich, Tacoma. Tacoma was selected as the next place of meeting.

Southern Surgeons Elect New Officers.—At the annual meeting of the Southern Surgical and Gynecological Association held at the Hotel Gibson, Cincinnati, December 14 and 15, Dr. Thomas O. Cullen, Baltimore, was elected president, and Drs. Robert S. Hill, Montgomery, Ala., and Willard Bartlett, St. Louis, were made vice presidents. White Sulphur Springs, W. Va., was selected as the place of meeting for next year.

Foes of Alcohol Meet.—At the forty-fifth annual meeting of the American Society for the Study of Alcohol and Other Narcotics, held in Washington, December 15, the following officers were elected: president, Dr. De Lancy Carter, New York City; vice president, Col. L. Mervin Maus, U. S. Army (retired), Frankfort, Ky.; corresponding secretary-treasurer and editor of the journal, Dr. Thomas D. Cruthers, Hartford, Conn., and recording secretary, Dr. Alfred Gordon, Philadelphia.

Personal.—Dr. John F. Anderson, formerly surgeon U. S. P. H. S., has returned from Europe. His present address is New Brunswick, N. J.——Dr. Ferdinand Shoemaker, assistant medical examiner in the United States Department of Indian Affairs, with headquarters in Salt Lake City, has gone to Skull Valley to investigate trachoma among the Indians.——Dr. Thomas W. Jackson, who has been on duty which the American Red Cross in Serbia, spent the Christmas holidays with his family in Akron, Ohio.

Public Health Hospitals.—It is announced that President Wilson will submit to Congress a plan for a new system of public health hospitals to take the place of the present condition of contract care of patients and government hospital service. The first step will be to take over the meteorological research station at the summit of the Blue Ridge, Mount Weather, Va., and convert it into a hospital for sailors and other patients from the Atlantic seaboard. Within another year locations will be selected for hospitals in Southern California and the southeastern part of the United States.

Eugenic News.—The *Eugenic News* is a new publication of the Eugenics Record Office at Cold Spring Harbor, New York. It is at present a four-page sheet. The first number contains an editorial on the purpose of the new publication and news concerning the doings of the Eugenics Record Office, news concerning field workers and general news of the eugenics movement. It is hoped that by having a medium of communication between the various eugenic organizations and workers that much duplication of effort may be avoided and the whole movement promoted.

Baking Powder.—January 14, at the bureau of chemistry, Washington, D. C., there will be a hearing by the joint committee on definitions and standards regarding baking powder. At the hearing all interested parties will be given an opportunity to present their views as to what should constitute the proper definition or standard for baking powder. The joint committee is composed of representatives of the department of agriculture, the Association of American Dairy, Food and Drug Officials, and the Association of Official Agricultural Chemists. The standards established by this committee are for the guidance of federal and state officials in the enforcement of the food and drugs law.

Rabies.—The department of agriculture is said to be acting through the biologic survey and the forest service in combating the serious wave of rabies among wild and domestic animals in the regions of the national forests of the West. The chief source of the spread of the disease is said to be coyotes. The eradication of coyotes in a rough country is said to be exceedingly difficult. Congress last year provided a fund of $125,000 to be spent by the biologic survey for the eradication of predatory animals on the public domain. Rabies first appeared in parts of Eastern Oregon, Washington and Northern Idaho and has now extended into Northern Nevada and Northern California. In California, Modoc and Lassen counties have been placed under quarantine by the state board.

China Educational Expedition Return.—Dr. Simon Flexner, New York, director of the Rockefeller Institute for Medical Research, Mr. Frederick Taylor Gates, chairman of the board of trustees; Dr. William H. Welch, Baltimore, president of the board of directors, and Mr. Wallace Buttrick, executive secretary of the general education board, reached San Francisco, December 27, on the *Tenyo Maru*, after a visit to China in connection with the work of the China Medical Board of the Rockefeller Foundation. The trip to China was to make a survey of the medical resources of the country that they might be enabled to investigate conditions and suggest betterments which they might find desirable. During the stay of the commission in China, they assisted at the dedication of the hospital at Chang Sha.

Bequests and Donations.—The following bequests and donations have recently been announced:

Massachusetts General Hospital, Boston, $5,000, for the establishment of free beds to be known as the Ella Channing free beds by the will of Ella Channing, Milton, Mass.

Leonard Morse Hospital, Natick, Mass., $5,000; and Carney Hospital, Boston, $1,000, by the will of Patrick H. Cooney, Natick.

Highland Park (Ill.) Hospital, donation of $10,000, toward the building fund by Walter C. Hately, Highland Park.

University of Kansas, for the benefit of the medical department, the remainder of the estate, real and personal, amounting to about $25,000, for the establishment of an annual scholarship to be known as the Dr. J. L. Porter scholarship, by the will of the late Dr. Joseph L. Porter, Paola.

Weeping Water (Neb.) Hospital, a contingent bequest of $7,500, by the will of Seymour A. Reed, Weeping Water. The will provides that the legacy will be in force provided $12,500 is raised for the hospital by the citizens of Weeping Water.

New York Medical College and Hospital for Women, a donation of $1,000, for laboratory equipment by Dr. Marshall O. Terry.

New York Medical College and Hospital for Women, a bequest of $10,000 by W. W. Cole; a donation of $2,000 by Dr. Cornelia C. Brant, Brooklyn, and donations of $1,000 by Dr. William E. Diefenbach, New York City; Dr. Walter Gray Crump, New York City, and Miss Anna Spring.

Biltmore (N. C.) Hospital, a bequest of $100,000 by the will of E. S. Bacon, New York City.

For a hospital for the Presbyterian State Orphanage, Barium Springs, N. C., a donation of $15,000 by James and W. H. Sprunt, Wilmington, N. C.

Public Health Report of the Secretary of the Treasury.—Among recommendations in the annual report for 1915 of the secretary of the treasury with reference to the Public Health Service are the following: (1) An increase in the appropriation for field work. It is said that there is great need of additional medical officers. The number of requests for advice and assistance in health problems from states and municipalities during the year far exceeded those of any similar period in the history of the service. In many instances the department was unable to comply. The field investigations in the Public Health Service have served as a stimulus to state and local health agencies. (2) Appropriation for an additional building for the hygienic laboratory. It is said that the work of this institution has been greatly extended in the direction of the examination of viruses, serums and the analogous products. A great demand for these products has been stimulated by the war abroad. An appropriation of $25,000 is therefore recommended to enable the department to carry out the law relating to the examination of these products. (3) The establishment of a national leprosarium. It is said that the United States is the only government of importance which does not provide for the care and isolation of lepers. (4) Additional clerical assistance is needed by the public health bureau.

National Tuberculosis Association.—At a meeting of the board of directors of the National Association for the Prevention of Tuberculosis, held in October, a report of which has not hitherto been printed, the following measures were adopted and recommended: A committee on medical education for physicians was appointed. It consists of Drs. H. R. M. Landis, Philadelphia; Dr. W. Gilman Thompson, New York; Dr. George Blumer, New Haven; Dr. John Ritter, Chicago, and Dr. Charles P. Emerson, Indianapolis. The committee will consider a course on tuberculosis for use in medical schools. A committee on education of nurses was also created for the purpose of considering a standard course on tuberculosis for nurses' training schools. Annual medical examination of the office force of the association, including new employees, was authorized. A committee was appointed to consider and formulate standards for the diagnosis of tuberculosis in children. Dr. James Alexander Miller, New York, was made chairman. A committee to consider standard hospital and other records was also proposed, the committee to be appointed later. A committee was provided for research in tuberculosis with a fund of $1,000. Dr. Edward R. Baldwin, Saranac Lake, N. Y., was made chairman, and the remainder of the committee was selected

by him. The next annual meeting was fixed for May 11-12, 1916, at Washington, D. C., immediately following the sessions of the Triennial Congress of Physicians and Surgeons.

FOREIGN

Deaths in the Profession Abroad.—W. A. Borger, assistant director of the Pasteur Institute and vaccination service in Java, aged 40. He succumbed to laboratory infection in research on bubonic plague.——B. Wicherkiewicz, professor of ophthalmology at the University of Cracow, aged 58.

Norway's Supply of Medical Men.—*The Norsk Magazin for Lægevidenskaben* states that there are now 1,221 physicians in that country, to a population of 2,400,000. This is equivalent to 5.09 to each 10,000 inhabitants, very nearly the same proportion as in Germany in 1913, namely, 5.11 per 10,000. The total for Germany was 34,136 physicians to a population of 66,800,000.

WAR NOTES

Physicians Needed in Bulgaria.—The Bulgarian embassy in the Netherlands has appealed to Netherlands physicians for medical aid in Bulgaria where it is urgently needed for the populace at large. An appeal has also been made to Swiss physicians, and E. Bircher, chief of the surgical service at the Aarau Cantonal Hospital, applied for two months' leave of absence to serve in Bulgaria, but the authorities said that he could not be spared from his post.

Losses of the University of Paris in the War to Date.—The *Presse Médicale* gives an illustration of the large tablet to be erected under the arcade of the great staircase of the medical department of the University of Paris. In October the design, already in place, contained the names of six members of the faculty, victims of the war (Galland, Legrand, Moog, Pelissier, Schrameck and Reymond—the latter the aviator). There are also inscribed the names of forty-seven students, and of twenty-six former graduates of the institution. Landouzy comments on this total of seventy-nine medical victims that the new methods of warfare have incredibly increased the dangers and privations of the medical men with the army. They keep right with the men in the trenches and toil on while others sleep.

LONDON LETTER

LONDON, Dec. 13, 1915.

The War

THE DEARTH OF MEDICAL STUDENTS

An appeal has been made by a number of distinguished university representatives, including Sir Clifford Allbutt, Prof. J. N. Langley, Sir Frederick Treves and others, against the government policy of recruiting medical students in their first three years as combatants. It is pointed out that during the war and after it there will be a greater need for physicians than has existed for many years, and it will be impossible to satisfy this need. The result must be tragic to the fighting line, to those who are supplying their needs at home, and to the general public. Even if all medical students remain at their work, the position will still be one of anxiety, but if these young men are all called up there will be a catastrophe. Certain restrictions might, of course, be enforced to prevent shirkers from taking advantage of the medical schools, and it might be arranged that no medical schools should take a larger number of students than three quarters of the average of the last three years. It could also be arranged that no students should be allowed to go on with their studies, who, in the opinion of their teachers, are not capable of qualifying at the normal time. The curriculum might be modified, at any rate for a time, and certain studies not directly of use in the fighting line could be for a time omitted. In all cases, students should receive military recognition and be trained in dressing, ambulance work, etc., so as to form a corps of skilled men when needed. For men who have passed their examinations in anatomy and physiology it might be possible to provide as is done in the navy, where they serve as surgeon probationers on the ships for six months and then have six months at home preparing and probably passing one by one their final examinations. Nobody can foretell the length of this war, and to empty our medical schools is to gamble on the chance that the war will be over within a year, or at most a year and a half. The stakes are high, for they are the lives and health of our forces in the field and ultimately the lives and health of our whole people.

THE SHORTAGE OF PHYSICIANS

The extent to which the shortage of physicians has gone is illustrated by an inquest on a child of 14 months who died at Westminster Hospital after an operation for adenoids. The house surgeon, who was an American physician (it has been pointed out in a previous letter that it is only since the shortage was created by the war that house appointments in the hospitals of this country have been thrown open to Americans), said that owing to the shortage of physicians he was obliged to act as both anesthetist and surgeon. Before the war the hospital had ten qualified anesthetists; now there were only three. "Just to give you an idea of the state of affairs," said the American physician to the coroner, "I do the resident medical officer's work for two days in the surgical department, give one day to the physician's work, two days to the outdoor department, one evening to another physician's work, and operations last until late in the day. I also have to finish the anesthetist's work in the theater."

AN EPIDEMIC OF ACUTE NEPHRITIS IN THE ARMY

Though the general health of the expeditionary force on the European continent has been very good, a curious outbreak of acute nephritis has occurred. Up to the end of last June the number reported was 1,062. Few cases were observed till February, when 72 cases were reported, 138 in March, 220 in April, 211 in May, and 326 in June. This distribution negatives one of the most generally held causes of acute nephritis—exposure to wet and cold—for during the winter with much wet weather the cases were few and the disease did not assume epidemic proportions until the weather was better. The water supply was investigated without result. The sources from which the patients had obtained water were extremely variable; some had been careful about boiling water, others had not. At St. Bartholomew's Hospital, where some of the patients were admitted and fifty-eight cases were investigated, Prof. F. W. Andrewes, the pathologist, found that all the glomeruli showed some evidence of inflammation, but that some were affected more than others. There was extensive damage in the convoluted tubules. The interstitial tissue of the kidney was edematous and infiltrated with lymphocytes and polymorphonuclears. The change was apparently recent, for there was no fibrosis. No micro-organisms could be found in stained sections. He concluded that the appearances were those of a fairly recent subacute diffuse nephritis, and that there was nothing to suggest that it was of an unusual type. There was no evidence of the nephritis having been set up by an ascending infection, or by a blood infection, the stress of which fell on the kidney. In view of the association between tonsillitis and nephritis, cultures were taken from the throats of some of the patients who complained of soreness, and from some who did not. In every case streptococci grew in abundance, but the throats of the soldiers suffering from nephritis were bacteriologically in a better condition than the throats of civilians, and the throats of the soldiers with and without nephritis were closely similar. Moreover, there was no excess of streptococci in the blood. As bacteriologic evidence of the origin of the disease was thus wanting, the suggestion has been made that it is due to a filter-passing ultramicroscopic organism. On the whole, the disease ran a favorable course. Only one of the fifty-eight cases was fatal. Most of the patients felt quite well as soon as the edema subsided, though some complained of headache, cough and digestive disturbances for a week or more. Yet many of those who felt and looked quite well were still passing albumin, blood and casts. A curious feature was the tendency to relapse; the albuminuria and hematuria recurred, generally without ascertainable cause. In only a few cases did chronic nephritis remain.

AUSTRALIAN PHYSICIANS AND THE WAR

When it was realized that many would be called on to undertake naval and military duties, resolutions were passed in every branch of the British Medical Association throughout Australia that the interests of these men should be safeguarded by their colleagues during their absence. It was agreed that no one should take advantage of the altered conditions to increase his own practice, and that patients should be induced to return to their former advisers when they returned from the war. But the position has assumed an unexpected aspect. The profession is becoming depleted to an alarming extent. The civil population and the troops are making calls on physicians which can scarcely be met. Over 500 physicians have joined the Australian Army Medical Corps; a further 200 are serving with the Army Medical Corps of the British Army, and the Australian Navy is using

a considerable number. The total number of physicians in Australia is under 3,000, so that approximately 25 per cent. have withdrawn from civil practice. In order to meet the resulting difficulties of civil practice, it has been proposed to arrange for the temporary pooling and distribution of medical work on a topographic basis.

BERLIN LETTER

Berlin, Nov. 23, 1915.

Water Supply of the Troops in the Field

One of the army corps has done some remarkable work in the matter of supplying itself with water. It was realized that there was an absolute necessity for an ample supply of drinking water and, if possible, to carry it to the combatants. The necessary material to carry out the plan was derived partly from Germany and partly from the field of operation. The engineers and their assistants were drawn from the troops, the laborers from the Belgian civil population. Within a few days groups of workmen were working all along the proposed waterway. Within a few weeks there had been laid 70 kilometers of water piping which in the meantime has undoubtedly extended to more than 100 kilometers. The water was derived from a number of deep wells situated on the properties of manufacturing companies. Some of these wells are 200 meters deep. At least 5½ million liters of water are obtained daily. The chemical examination has shown that the water is potable. In the district occupied by this army corps there were during the summer of 1915 over 200 water stations, and if necessary, this number can easily be increased. Engines of more than 350 horse power are used to furnish the necessary pressure because of the fact that there is a difference of 240 meters between the highest and the lowest well supply. This enormous pressure makes it possible to secure a uniform water supply in all parts of the district irrespective of the location of the well.

The Birth Rate and Infant Death Rate in German Cities

In a previous letter (The Journal, Dec. 25, 1915, p. 2253) I discussed this question at some length referring briefly, however, to the city of Essen where there was an increase in the number of births instead of a decrease. This increase was about 20 per cent. and I mention it again to call attention to the fact that Essen is the home of the Krupp works and naturally one would expect a considerable increase in the population because of the additional employees imported by the Krupps. In March, 1915, Essen had a population of about 345,000 and in April the population numbered 477,000. Proportionately, however, the birth rate was lower than before, although relatively there was an apparent increase. In Cologne the decrease in the birth rate was less noticeable than elsewhere, the perceatage being 94.2 during the period from April 4 to July 31 as compared with 100 for the same period of the previous year. In Cologne and in Essen the death rate was higher during the observation period under the age of two years than in the previous year whereas in all other cities there was not only a decrease in the birth rate but also a decrease in the mortality during the first year of life. In most of the cities including Berlin, Munich, Leipzig and Breslau the percentage of decrease in the total number of live born children varied between 80 and 90: 100. In Duisburg, Dresden, Frankfurt a. M., New Cologne, Nürnberg, the birth rate during the observation period of 1915 had fallen off 20 per cent. over the same period in the previous year, Nürnberg showing the greatest fall, 68.8. The decrease was less in Breslau, Königsberg, Munich, Kiel, Düsseldorf, Berlin-Schöneberg and Hannover. In Stettin the decrease in the death rate during the first year of life was so considerable as to counterbalance more than one half the decrease in the birth rate. Naturally, one would expect to find a diminution in the birth rate during the war, and taking the question of birth rate and death rate among infants on the whole, the percentages are not alarming.

VIENNA LETTER

Vienna, Nov. 30, 1915.

The War Hospitals in Vienna

A year ago, when the most urgently wanted hospital beds were scarce, the danger of epidemics was most threatening. More wounded soldiers than had been counted on returned to the capital, and with them the possibility of an outbreak of dysentery, typhoid and cholera. The municipality of Vienna quickly built pavilions accommodating 1,300 beds, but these were, of course, insufficient. The chief requirement was to prevent the spread of contagion, and to house all suspicious cases so that the general public might remain free from danger. This was effected by the Ministry of the Interior within a few months, and two huge modern hospitals, each for over 3,000 infectious cases, were built and stand waiting for their inmates. Luckily, the hospitals are as yet nearly empty, and the expenditure, about $2,000,000, is rather more in the nature of an insurance premium than anything else, for the expected infectious cases have not made their appearance as yet. But the secret of success is to be ready for every emergency, and the sanitary measures adopted for the protection of the health of the population were so efficacious that the "infection hospitals" remain nearly empty. The leading idea of the new hospitals was the prevention of the spread of contagion. For this purpose the hospitals are on the principle of division into a clean part and an infected part. Furthermore, the separation of the patients' housings from that of the sanitary and the administrative personnel and the offices is complete. Each one of the two hospitals consists of about ninety different pavilions, built partly on the system of permanent buildings, partly as half permanent barracks. The group of the clean pavilions is separated by a wall from the infectious group, with a few passages in the wall. These passages consist of buildings built on the system of division.

The patient on coming to the hospital enters first the receiving hall. If he can walk or sit he enters the first receiving hall, where he is at once bathed, his hair cut and he and his clothing carefully cleared of lice and other insects. The clothing is carefully disinfected and stowed away, and the patient is given refreshment or food, as required. In the receiving hall a large number of water closets are provided, for at the beginning of the war, when large numbers of dysentery patients were brought to the hospitals, the few water closets then at the disposal of the patients were instantly occupied by the poor men suffering from incessant tenesmus, and the remainder could not do otherwise but soil the receiving halls in such a manner as to drive the nurses and the servants to despair. If the patient is unable to walk or sit, he is brought into the second receiving hall, where he is laid on a stretcher consisting only of metal and linen which can be thoroughly washed and sterilized. Otherwise, the patient is treated on the same lines as the patient from the first receiving hall: he is bathed, his hair is cut, and refreshments are given, chiefly hot tea or coffee. No patient enters the wards in an unclean state. After his bath, each newcomer receives a new set of linen clothing, and is seen at once by the house physicians. The dejecta are directed into special reservoirs, where they are thoroughly disinfected before they pass into the drainage system of the city. Attention is paid to frequent change of linen, which so often becomes soiled by patients suffering from enteritis, dysentery or typhoid. Next to each ward is a special space where soiled linen is kept in a large tank of cement, containing a 5 per cent. dilution of compound solution of cresol. This linen is then transported in wet condition into the laundry, which is situated in the wall between the clean and unclean part of the hospital. In the kettles of the laundry the soiled linen is sterilized by steam. The kettles are built in such a way that they consist of two halves, a clean one and an unclean one. When the unclean part is charged with linen, the clean part is locked automatically in such a manner that it cannot be opened until the temperature of the steam has reached a certain degree insuring complete sterilization of the contents. The linen passes into the clean part, which itself can be reached only from the clean side of the laundry, and then the sterilized linen is washed and ironed. The same procedure takes place with everything coming from the unclean side. Table utensils, knives, forks, plates, medicine bottles, bandages, instruments and papers must be sterilized before they are allowed to pass on to the clean side. Doctors, nurses, servants, everybody passing from one part of the hospital to the other clean part must disinfect himself. For this purpose, the passage house has been built. It consists of twenty sections. Each section has on the unclean side a room for undressing, then a douche and bathroom, then the person comes into another dressing room, where he finds a clean suit, and so he is allowed to pass on to the clean side of the hospital. The water from the passage house is also disinfected before it enters the main drainage pipes; of course, hot water is always to be had in these twenty baths. For the bodies of those who die in the hospital, a special mortuary has been erected, which is accessible from outside the hospital also. Thus funerals may take place from the mortuary without the hospital itself being entered.

The dead bodies come into the mortuary from the unclean side. There they are put into the coffin and allowed to pass a narrow slit in the wall, all precautions being taken against spread of infection. Also the people engaged in the mortuary behind the wall can leave this building only through the passage house, which is on the other end of the hospital.

The clean part of the hospital comprises the gigantic kitchen, the steam laundry, the administrative barracks, and the barracks for the doctors, nurses and servants. It is understood that all persons engaged in the hospital must also live in it, so as to prevent the transmission of disease to the population. Naturally, the clean part comprises also the apothecary's laboratories, the storehouse for the disinfected clothing and the storehouses for all the remainder of the things required in such a huge hospital, for as soon as an article is used, it is at once replaced, as a certain quantity of every article must always be at hand. Of course, the problems of heating and illumination have been solved in the most up-to-date manner. Electricity is paramount, and gas stoves are the rule everywhere. The number of hospitals in Austria built on the same principle is now about twenty. When the war is over, it is hoped that these hospitals will be allowed to remain as public hospitals, and thus once for ever do away with the dreary problem of lack of hospital beds, of which complaint has so often been made.

Arrival of the Serbian Mission of the American Red Cross in Vienna

After having stayed in Serbia for over eight months, the mission of the American Red Cross, which had worked at Belgrade, arrived safely in Vienna. The victorious attack of the Austrian army surprised the American group in one of the Serbian war hospitals, and the members were treated in the most friendly and kind way by our troops. They had been working all over the country, having arrived there at the time when the epidemic of typhoid was at its height. The members of the mission were reluctant to give any information to the private press as regards their experiences in Serbia, but they admitted that the death rate from epidemic disease was very high in the unhappy country. Not only soldiers and prisoners, but also the population suffered severely from the lack of medical men and of remedies.

The Nobel Prize for Dr. Bárány

Docent Dr. Bárány, the scientist and otologist, whose classes on the physiology and pathology of the labyrinth were so much frequented by the American students in Vienna, volunteered at the beginning of the European war and did active service in the famous fortress of Przemysl, where he was taken prisoner by the Russians. He was awarded the Nobel prize for medicine for 1914, and in a wire to his wife in Vienna, Dr. Bárány states that the Russian government informed him of the fact one day after it was known in Europe. Dr. Bárány is working as a surgeon to prisoners of war in a hospital situated at Merv, and it is hoped that the Russian government will release him and send him back. Dr. Bárány has continued his scientific work both while in the Austrian army and during his involuntary stay in the Asiatic hospital.

PARIS LETTER

PARIS, Dec. 9, 1915.

The War

TRADE SCHOOLS FOR WAR CRIPPLES

I mentioned (THE JOURNAL, March 13, 1915, p. 923; May 15, 1915, p. 1671; June 26, 1915, p. 2152, and Sept. 25, 1915, p. 1124) the schools which have been organized at Lyons and at Paris (Saint Maurice) for the industrial education of war cripples. Since then other schools of this character have been organized at Marseilles, at Clermont-Ferrand, at Havre, and in centers of special industries, like Elboeuf (cloth trade), Thiers (cutlery), Cluses (national school of watch making), Oyonnax (comb making and manufacture of celluloid articles), etc. Some of these schools give instruction in quite a large number of trades. Thus at the school at Marseilles instruction is given in shoe making, tailoring, bookkeping, clerical work, stenography, typewriting, copying, mechanical drawing, wood and metal turning, carpentry, modeling, industrial design, electricity, tin smithing, foundry work and coppersmithing. The instructors are soldiers from the ranks of noncommissioned officers who must be good workmen. Having been pronounced unfit for service or sent back from the front on account of wounds or disease, they have been assigned to these schools of physical reeducation.

The pupils of these schools have followed all kinds of vocations previously, but peasants (farm workers) predominate among them. A man who has lost a leg cannot very well go on cultivating the soil. In a workshop, however, he may make a good carpenter or excellent shoemaker. Men who have lost their right hands learn to write with the left, and some among them make very good bookkepers or mechanical draftsmen. The schools for cripples, if well managed and taught, may really become a center for physical reeducation.

In addition to these schools, which are intended chiefly to train workmen, special sections for the training of war cripples are to be organized in the commercial and agricultural schools.

THE WAR AND THE PROPHYLAXIS OF DIPHTHERIA

During its last session, the Council on Hygiene took under consideration a report from Dr. H. Dubief, principal medical inspector of epidemics in the department of the Seine, with regard to the prophylaxis of diphtheria on a large scale by preventive inoculation of diphtheria antitoxin. Recently, in various places around Paris (Chevilly and Orly, where Belgian children are being cared for, Saint Denis and the little commune of Pavillons-sous-Bois), little outbreaks of diphtheria have appeared, which, because of the numbers of mobilized soldiers or refugees from the invaded territories gathered in the outskirts of Paris, may give rise to dangerous epidemics. While the customary measures of disinfection were applied, an extensive application of diphtheria antitoxin was also employed, 2,646 preventive inoculations being made. The progress of the disease was immediately checked. This experience was certainly conclusive and most encouraging for the systematic organization of a campaign against diphtheria.

Professor Chantemesse called the attention of the Council of Hygiene to the exaggerated fear, among the medical profession, of possible anaphylactic complications. The facts reported by Dr. Dubief show that such complications are very rare and not to be feared. Dr. Vaillard, medical inspector-general of the military medical service, emphasized the necessity of making a diagnosis as early as possible in diphtheria. Bacteriologic examination, which may easily be obtained without delay in the laboratories of the city of Paris or of the service of epidemics of the suburbs, is the only reliable guarantee in this respect.

OPHTHALMOLOGIC REQUIREMENTS IN THE MARINE SERVICE

Up to the present the wearing of glasses has been a disqualification for the marine service. A degree of visual acuity differing according to the special branch has been required, but correction by spherical glasses has not been authorized. This has appreciably hampered recruiting. The minister of the marine has just modified this rule. The different branches of the service have been divided into three classes, and the present rules with regard to visual acuity are maintained only for the first class, including pilots, gunners, etc.

THE FIRST CASE OF FROZEN FOOT IN THE AUTUMN OF 1915

Last year there was much discussion on the respective shares of cold, humidity and compression in the production of the troubles known as "frozen feet." Dr. E. de Massary, physician of the hospitals, has just shown before the Société médicale des hôpitaux de Paris a man affected with these lesions at a time during this autumn when the mercury had not gone below 12 C. (53.6 F.). In this case the cold cannot be blamed. This case seems to show that the theory set forth by Dr. Témoin of Bourges is the correct one (THE JOURNAL, March 6, 1915, p. 843), and that these so-called freezings are trophic troubles produced, in subjects predisposed by previous vascular or nervous conditions, by humidity or by constriction due to shrinking of shoes, to bands worn too tight or to prolonged standing. The lesson is a valuable one, especially now, when bad weather threatens a renewal of the troubles of last winter if they are not guarded against.

THE ENLISTMENT OF THE 1917 CLASS

The young men belonging to the class of 1917—that is those aged 18—are to be called under the flag, January 5. The *Journal Officiel* has just published the instructions of the minister of war, General Galliéni, with regard to the measures to be taken in this connection. Because of the youth of these soldiers, and because they are called under

the flag during the winter, particular attention is to be paid to their lodging, bedding, dress, food, the healthfulness of their environment and the wise gradation of their military instruction and training.

The rooms which they are to occupy are to contain at least 17 cubic meters (about 600 cubic feet) per man. Underlinen and warm knit articles such as jerseys and socks are to be distributed in sufficient quantity. During the cold season the lavatories are to be warmed after reveille. The young soldiers are to receive a meat ration of not less than 400 gm. a day.

The instruction of the recruits is to be very carefully conducted according to a progressive system adapted to weather conditions and to individual constitutions. Differences of physical vigor, aptitude and temperament of the young soldiers are to be carefully taken into account in assigning recruits to different parts of the service. The total duration of instruction of the young soldiers is not necessarily to be uniform, and the dates of their assignment to active service are to be arranged in accordance with an elastic schedule.

General Galliéni adds that the young men should be discouraged from frequenting cabarets and that drunkenness must be strictly suppressed. Therefore it is desirable to encourage, or if necessary to arrange, outside of the barracks social centers where the young soldier may pass his leisure hours in a comfortable, agreeable atmosphere, under moral and patriotic influences which will protect him against the temptations of the cabaret and other harmful influences.

PERSONAL

Dr. Monprofit, professor of the surgical clinic at the Ecole préparatoire de médecine et de pharmacie d'Angers, and at present head surgeon of an automobile ambulance, has just been mentioned for gallantry in the *Journal Officiel* in the following terms: "An eminent surgeon and head of service, of indefatigable activity and devotion, in the army since the beginning of the war, although under no military obligation, distinguished himself notably from Sept. 25 to Oct. 10, 1915, by his devoted care to the wounded, a great number of whom owe their life to his surgical skill. He remained at his post until he reached the point of complete exhaustion."

Dr. Louis Bazy, surgeon of an automobile ambulance, has been mentioned for gallantry in the following terms: "Although under no military obligation, he has since the beginning of the war displayed the greatest devotion in the ambulances at the front and, especially during the bombardment of Furnes, has given proof of remarkable professional qualities and of the highest courage." Dr. Louis Bazy is a son of Dr. Pierre Bazy, surgeon of the hospitals of Paris and member of the Académie de médecine.

Marriages

GEORGE HENRY MUELLER, M.D., Jersey City, N. J., to Miss Helene Ten Broeck of Asbury Park, N. J., at New York City, October 25.

JAMES TICKELL DOWNS, M.D., JR., Dallas, Texas, to Miss Elizabeth Florence Erich of Allentown, Pa., December 14.

BERNARD OSCAR HARRIS, M.D., Detroit, to Miss Ida Tilya Muscovich of Mount Clemens, Mich., December 19.

THOMAS ADAM LAWSON, M.D., to Miss Mattie M. Mellinger, both of Dallastown, Pa., at York, Pa., December 13.

IRWIN L. CHIPMAN, M.D., Wilmington, Del., to Miss Marguerite E. Rockey of York, Pa., December 21.

SELIM WALKER MCARTHUR, M.D., Chicago, to Miss Jean Dean Gillett Barnes of Decatur, Ill., January 1.

JULIUS RAYMOND FERNANDEZ, M.D., New Orleans, to Miss Florence Picard of Biloxi, Miss., December 7.

HENRY THOMAS LEE, M.D., JR., to Miss Anna Chance Clark, both of New York City, December 22.

WILLIAM EDWARD MORGAN, M.D., Chicago, to Mrs. Kate I. Berry of Bradford, Pa., December 22.

RICHARD PEARSON STRONG, M.D., Boston, to Mrs. Agnes Leas Freer of Brooklyn, January 1.

FRANK WILLIAM SPICER, M.D., to Miss Madeline Miller, both of Duluth, Minn., December 11.

JOHN PAUL HAM, M.D., St. Louis, to Miss Elva Finch of Pana, Ill., December 25.

Deaths

Henry Lowry Emilius Johnson, M.D. Medical Department of the George Washington University, Washington, D. C., 1882; aged 57; died suddenly from heart disease, December 21, at his home in Washington. He was born in Washington, Nov. 11, 1858, and was graduated from the George Washington University, Department of Medicine, in 1882. He served as president of the Medical Association of the District of Columbia, and chairman of the Board of Councilors, and he was for some time a member of the Board of Medical Examiners of the Medical Society of the District. He was a Fellow of the American Medical Association, and a member of its Board of Trustees from 1898 to 1908. He was chairman of the Committee on National Legislation for three terms.

Dr. Johnson was a member and one of the organizers of the Pan-American Medical Congress and served for three terms as vice president, for four terms as member of the International Executive Commission and for one term as member of the International Committee on Public Health; he also was a member of many other learned societies and was a frequent contributor to the medical literature. Dr. Johnson was elected coroner of the District of Columbia in 1889. From 1889 to 1905 he was professor of gynecology and clinical gynecology in his alma mater; he was also one of the founders and professor of gynecology in the Post-Graduate School of Medicine of the District of Columbia and one of the founders of the Washington Post-Graduate Medical School and of the Clinico-Pathological Society of the District of Columbia. He was consulting gynecologist to Providence Hospital and the United States Government Hospital for the Insane and represented the United States Department of State at the International Congress of Hygiene in Berlin in 1907, the Sanitary Conference of the American Republic in Mexico in the same year, the International Medical Congress at Budapest in 1909, and served in addition as vice president of the First, Second and Third International Sanitary Conventions of American Republics.

Of late years Dr. Johnson has been much interested in aviation and patented in 1912, a safety aeroplane, a ship and aeroplane compass and an inclinometer. Dr. Johnson was a man of varied accomplishments, loyal and enthusiastic, and in his death the medical profession of the United States loses one of its most valuable working members.

Rudolph August Witthaus, M.D. Chemist and toxicologist of world-wide eminence; aged 69; died in his apartment in New York City, December 20, from heart disease. Dr. Witthaus was born in New York, Aug. 30, 1846, obtained his A.B. degree in 1867 and his A.M. degree in 1870, from Columbia University. He then entered the University Medical College and after the full course of study and in addition, two years of work at the Sorbonne and the Collége de France, Paris, was graduated with the degree of M.D. in 1875. From 1876 to 1878, Dr. Witthaus was associate professor of chemistry and physiology in his alma mater; in 1882 he was made professor of physiologic chemistry, and in 1886, professor of chemistry and physics. He was also professor of chemistry and toxicology in the University of Vermont from 1878 to 1898; professor of chemistry and toxicology in the University of Buffalo from 1882 to 1888. In 1898 he was appointed professor of chemistry and physics in Cornell University Medical College, New York City, and served in that capacity until 1911 when he was made professor emeritus. Dr. Witthaus was a Fellow of the American Association for the Advancement of Science and a member of many of the chemical societies of this country and Europe. He was the author of several standard textbooks on chemistry, notably the "Essentials of Chemistry" which appeared in 1879; "General Medical Chemistry" which appeared in 1881; "Manual of Chemistry" which was issued in 1879, and the sixth edition of which appeared in 1908; and "The Laboratory Guide in Urinalysis and Toxicology" which was published in 1886. He was also the editor of "Witthaus and Becker's Medical Jurisprudence," in four volumes, of which he wrote the introduction and the entire fourth volume which was devoted to toxicology. He was also the author of a number of monographs on his specialties. Dr. Witthaus was one of the most noted experts in the world in cases of death supposed to be due to poison.

David Williams Cheever, M.D. Harvard Medical School, 1858; aged 84; one of the most distinguished of the old-time surgeons of Massachusetts; died at his home in Boston, December 27. Dr. Cheever graduated from Harvard Uni-

versity in 1852 and occupied the time between graduation and his entrance to Harvard Medical School in studies in Europe. He served his alma mater continuously from 1861 when he was appointed demonstrator of anatomy. In 1868 he was made adjunct professor of clinical surgery; in 1875, professor of clinical surgery; in 1882, professor in surgery and was made emeritus professor in 1893. He was appointed on the staff of the Boston City Hospital at its opening in 1864 and was made professor emeritus in 1893. He was also surgeon of the Boston Dispensary for five years and served for a few months during the Civil War as surgeon of United States Volunteers. His society affiliations included the Massachusetts Medical Society of which he was president in 1888 and 1890, and the American Surgical Association of which he was president in 1889. He was an overseer of Harvard College for twelve years; a fellow of the American Academy of Arts and Sciences; and an honorary fellow of the American College of Surgeons. Dr. Cheever was a prolific contributor to the literature of surgery; he was the author of the "Medical and Surgical Report of the City Hospital" in five volumes and also of "Lectures in Surgery." Dr. Cheever was a distinguished surgeon, a reliable physician, a clear thinker, a terse writer, an impressive speaker, admirable teacher, a loyal member of the medical profession, and a good citizen.

Joseph John O'Connell, M.D. Long Island College Hospital, Brooklyn, 1887; aged 50; a Fellow of the American Medical Association; health officer of the port of New York; died at his home in the Quarantine Station at Staten Island, January 1, from myocarditis. Dr. O'Connell was for many years sanitary inspector in charge of the Contagious Disease Bureau of the Brooklyn Board of Health and had a large general practice in Brooklyn. He made a specialty of neurology and psychiatry and was examiner in lunacy for the city of New York and alienist of the Kings County Hospital until his appointment as health officer. He was also lecturer on hygiene in the New York University and lecturer on public health in the Long Island College Hospital, and ex-officio a member of the New York City Board of Health. During Dr. O'Connell's term of office as Health Officer of the Port of New York he effected several important changes in the quarantine service; chief among these was the construction of the Quarantine Pathological and Bacteriological Laboratory and the working out of the scheme of cleansing the persons and clothing of typhus patients to prevent the spread of the disease. Dr. O'Connell was also visiting physician at St. Mary's Hospital and the Hospital for Mental and Nervous Diseases and surgeon to St. Mary's Female Hospital. He was the author of a number of monographs on hygiene and sanitation. "The Possibility of Choleraic Infection of the Waters of New York Bay"; "The World War and Maritime Commerce" and other cognate subjects.

William Lincoln Ballenger, M.D. Bellevue Hospital Medical School, 1886; aged 54; of Chicago; a Fellow of the American Medical Association; well known as a specialist on diseases of the throat, nose and ear; professor of laryngology, rhinology and otology in the College of Physicians and Surgeons, Chicago; secretary of the American Academy of Ophthalmology and Oto-Laryngology from 1899 to 1902; president from 1902 to 1904 and since that time councilor; and of the Chicago Laryngological and Otological Society; professor of otology in the Chicago Eye and Ear College; a member of the International Otological Congress; author of a standard text book on diseases of the nose, throat and ear which was published in 1900; died in Economy, Ind., from diabetes, December 21.

Alexander Grant Sinclair, M.D. College of Physicians and Surgeons in the City of New York; 1869; aged 73; a Fellow of the American Medical Association; formerly vice president of the American Medical Editors' Association, dean and emeritus professor of ophthalmology, otology, laryngology and hygiene in the Memphis (Tenn.) Hospital Medical College, ophthalmic and aural surgeon and laryngologist to St. Joseph's Hospital and St. Peter's Orphan Asylum and ophthalmic surgeon to the Old Ladies' Home and City Hospital, Memphis; an ophthalmologist of Memphis since 1880; died in the Baptist Memorial Hospital in that city, December 18, from pneumonia.

John Orlando Roe, M.D. University of Michigan, Ann Arbor, 1870; College of Physicians and Surgeons in the City of New York, 1871; aged 66; a Fellow of the American Medical Association and of the American College of Surgeons; and a member of the American Laryngological Society, American Chemical Society, New York Academy of Medicine and other learned societies; who had made an especial reputation in plastic surgery of the nose; one of the organizers of the Rochester (N. Y.) Academy of Medicine; for many years laryngologist to the Rochester General Hospital; died at his home in Rochester, December 24, from anemia.

William Philip Spratling, M.D. College of Physicians and Surgeons, Baltimore, 1886; aged 52; from 1894 to 1908 medical superintendent of the Craig Colony for Epileptics, Sonyea, N. Y., and later a practitioner of Baltimore, and professor of physiology and nervous diseases in the College of Physicians and Surgeons, Baltimore, from 1908 to 1909; formerly president of the National Association for the Study of Epilepsy; the author of a work on "Epilepsy and Its Treatment"; but for the last four years a resident of Welaka, Fla.; died in that place, December 22, from the effects of a gunshot wound accidentally self-inflicted while hunting.

James William Rabe, M.D. University of Pennsylvania, Philadelphia, 1888; aged 48; a Fellow of the American Medical Association; local surgeon at Akron, Ohio, for the Baltimore and Ohio, Pittsburgh and Western, and Columbus, Hocking Valley and Toledo railroads; surgeon to the Akron City Hospital; one of the most prominent practitioners of northern Ohio; died at his home, December 16, from myocarditis.

John Anderson Davis, M.D. University of Michigan, Ann Arbor, 1873; aged 68; a Fellow of the American Medical Association; a well-known practitioner of central Illinois; a member of the Illinois Central and Yazoo and Mississippi Valley Railway Surgeons' Association; local surgeon at Farmer City for the Illinois Central Railroad since 1899; died at his home in Farmer City, December 20, from pneumonia.

Arthur W. Dunning, M.D. College of Physicians and Surgeons, Chicago, 1885; aged 55; a Fellow of the American Medical Association and president of the Ramsey County (Minn.) Medical Society in 1910; instructor in neurology in the City and County Hospital, St. Paul, and neurologist to St. Luke's Hospital and the St. Paul Free Dispensary; died at his home in St. Paul, December 21, from heart disease.

Paul Neumann, M.D. University of Breslau, Germany, 1866; University of Greifswald, Germany, 1878; aged 71; and a veteran of the Schleswig-Holstein, Prusso-Austrian and Franco-German wars; a surgeon and colonel in the German service from 1866 to 1896; for twenty-three years a practitioner of Wichita, Kan.; died at the home of his son in South Bend., Ind., December 15.

Francis Marion Letcher, M.D. Tulane University, New Orleans, 1861; aged 78; formerly a member of the Medical Association of the State of Alabama, a surgeon in the Confederate service throughout the Civil War; for many years a practitioner of Shorter, Ala., but since his retirement a resident of Montgomery; died at his home in that city, December 11.

Cary Rees Montgomery, M.D. Columbus (Ohio) Medical College, 1880; aged 65; formerly physician in charge of the Ohio State Penitentiary, Columbus; died in the Buena Vista Sanitarium, San Francisco, from the effects of a gunshot wound of the head, self-inflicted, it is believed, with suicidal intent while despondent on account of ill health.

Adolphus M. Scheel, M.D. University of Munich, Bavaria, 1876; aged 64; a Fellow of the American Medical Association; died at his home in Belleville, Ill., December 16, from heart disease. The Belleville Medical Association at a special meeting December 18 adopted resolutions recognizing the sterling worth of Dr. Scheel and regretting his death.

Claude Aloysius Quina, M.D. Tulane University, New Orleans, 1915; aged 26; intern in the Charity Hospital, New Orleans, and assistant demonstrator of pathology and bacteriology in his alma mater; was lost at sea on the United Fruit Company's steamer *Marrowijne* when it foundered in a tropical hurricane in the Gulf of Mexico, August 15.

Frank Grant Mason, M.D. Rush Medical College, 1890; aged 50; for eight years chief adjustor of the Pacific Mutual Life and Accident Insurance Company and North American Accident Insurance Company; also a graduate in pharmacy; died at his home in Chicago, December 23, from heart disease.

Denis F. Ragan, M.D. Cooper Medical College, San Francisco, 1887; aged 54; a Fellow of the American Medical Association and a well-known practitioner of San Francisco; died at his home in that city, December 19, from pernicious anemia.

Stephen Cramer Quinby, M.D. Louisville (Ky.) Medical College, 1899; aged 47; formerly assistant to the chair of pediatrics in the Kentucky University, Louisville, and Arizona Medical Association; died in the Phoenix State Hospital, recently, as the result of a nervous breakdown.

Erdmann N. Brandt, M.D. College of Physicians and Surgeons in the City of New York, 1889; aged 48; a member of the Medical Society of the State of New York; attending physician to the Tarrytown (N. Y.) Hospital; died at his home in that city, December 23, from pneumonia.

Emmett J. Cole, M.D. Hahnemann Medical College, Chicago, 1896; aged 64; a member of the Illinois State Medical Society and of the State Medical Society of Wisconsin; for four years mayor of Rockton, Ill.; died at his home in that city, December 22, from heart disease.

James Francis Kearns, M.D. McGill University, Montreal, 1894; aged 52; a Fellow of the American Medical Association and at one time mayor of La Junta, Colo., and president of the La Junta City Hospital Association; died in La Junta, December 24.

Thomas Joseph Leahy, M.D. Harvard Medical School, 1892; aged 46; formerly a Fellow of the American Medical Association; a member of the Massachusetts Medical Society; died at his home in Cambridge, Mass., December 25, from pneumonia.

George Otto Heffter, M.D. Eclectic Medical College of the City of New York, 1887; aged 53; a practitioner of Harlem, New York City, for more than thirty years; also a pharmacist; died at his home in Harlem, December 21, from pneumonia.

Bentley Silas Bourne, M.D. Niagara University, Buffalo, 1890; aged 49; a Fellow of the American Medical Association and for twenty-five years a practitioner of Hamburg, N. Y.; died in Salisbury, Md., December 25, from heart disease.

Falk Tennyson, M.D. University of Minnesota, Minneapolis, 1893; aged 48; formerly a druggist, but for the last twenty-two years a practitioner of North Minneapolis, Minn.; died at his home in that city, December 17, from meningitis.

William F. Stokes, M.D. Rush Medical College, 1897; aged 47; a Fellow of the American Medical Association and one of the medical staff of the West Side Hospital, Chicago; died at his home in Chicago, December 26, from pneumonia.

James Tuttle Owen, M.D. Tulane University, New Orleans, 1915; aged 28; of White Castle, La.; was lost at sea on the United Fruit Steamer *Marrowijne* when it foundered in the Gulf of Mexico on August 15, 1915.

Fred F. Sovereign, M.D. Rush Medical College, 1869; aged 69; for more than forty years a practitioner of Three Oaks, Mich.; died in St. Anthony's Hospital, Michigan City, Ind., December 22, from diabetes.

Philip R. Hengst, M.D. College of Physicians and Surgeons, Baltimore, 1883; aged 59; of Waco, Texas; died in his apartment in Baltimore, December 13, from cerebral hemorrhage.

Willis Fremont Moore, M.D. Rush Medical College, 1880; aged 59; for twenty-seven years a practitioner of Chattanooga, Tenn.; died in a hospital in that city, December 15.

Joseph A. Miles, M.D. College of Physicians and Surgeons, Baltimore, 1907; aged 43; of Baltimore; died in Mercy Hospital in that city, December 14, from tuberculosis.

Gilbert F. Parks, M.D. Detroit College of Medicine and Surgery, 1886; aged 59; of Junction City, Ore.; died in Eugene, Ore., September 26, from gallstone disease.

Daniel M. Craig, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1876; aged 62; was found dead from heart disease in his office in Garnett, Kan., December 15.

Caroline Lincoln Guild, M.D. Hahnemann Medical College of the Pacific, San Francisco, 1888; of San Mateo, Calif.; died in San Francisco, November 24.

Alfred A. Weber, M.D. University of Vienna, Austria, 1885; aged 58; died at his home in Chicago, December 19, from heart disease.

John P. Siegfried, M.D. Hahnemann Medical College, Chicago, 1888; aged 60; died at his home in Ashtabula, Ohio, December 13.

Jack J. Shipley (license, Texas, Act of 1907), aged 43; died at his home in Hemming, Texas, December 9, from heart disease.

Emma Pownall, M.D. Curtis Physio-Medical Institute, Marion, Ind., 1896; died recently at her home in Bremen, Ind.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE ASSOCIATION'S EXHIBIT AT SAN FRANCISCO

The educational exhibit made by the American Medical Association at the Panama-Pacific Exposition is thus described in the issue of the *Pacific Pharmacist* recently received:

"By the time the present number of the *Pacific Pharmacist* will be in the hands of our readers it is likely that the Panama-Pacific International Exposition will have closed its gates forever. In speaking of this event one naturally recalls the words of Prospero:

> Our revels now are ended. These our actors,
> As I foretold you, were all spirits, and
> Are melted into air, into thin air;
> And, like the baseless fabric of this vision,
> The cloud-capp'd towers, the gorgeous palaces,
> The solemn temples, the great globe itself,
> Yea, all which it inherit, shall dissolve,
> And, like this insubstantial pageant faded,
> Leave not a rack behind.

"To the warring nations of Europe this exposition was a grand object lesson, teaching them that: 'Peace hath her victories no less renowned than those of war.' While to those of us who had the time and opportunity and the intellectual training to take advantage of the thousands of treasures therein exhibited it was a priceless boon and one not likely to be repeated in the lifetime of any who now walk the earth.

"There was one exhibit at the Fair that must have appealed to all philanthropists, pharmacists and physicians—that was the one the American Medical Association installed in the Educational Building. It was an exposé in connection with their Propaganda for Reform in Proprietary Medicines. Though somewhat of a misnomer the words patent medicines are the words most generally used to designate this line of merchandise. In examining this exhibit one must be struck with the fact that the most popular of these preparations are those which contain the most whiskey. Standing by many of these patent medicines there was a flask of whiskey, whose alcoholic contents represented the amount contained in the proprietary preparation there exhibited. To those who have acquired the liquor habit and are denied the use of liquors these patent medicines often furnish a satisfying substitute.

"The patent medicine business has been a curse to pharmacy and it is to be regretted that many pharmacists, somewhat in the nature of a tacit endorsement, have, over their own names from week to week, advertised these preparations, selling them at reduced rates as if by so doing they were conferring a favor on the public. Some also have given their show windows to displays of these quack remedies, receiving in return for so doing a few bottles of the nostrums. And again some of the less reputable journals have allowed the use of their columns to advertise these preparations.

"The federal laws and the laws of our state have done a great deal to suppress this patent medicine evil, but which still remains to be done, and each one in his own sphere can lend a helping hand so that eventually the laws in our land will be as strict as they are in such countries as France, Germany and England.

"But for the assistance of pharmacists the patent medicine business never could have attained the proportions it has today. It is to be hoped that now there will be a turn in the tide and pharmacists will no longer be obliged to encumber the shelves of their pharmacies with these generally useless if not harmful preparations.

"It was the intention of the writer to give a description of the most prominent patent medicines exploited in the American Medical Association's exhibit, but as the same subject is most fully explained in the literature published by that society it was thought advisable not to do so.

"We would advise such of our readers who have not this literature to write to the American Medical Association, 535 North Dearborn Street, Chicago, and get copies of the following: 'The Great American Fraud,' by Samuel Hopkins

Adams; 'Nostrums and Quackery,' the many pamphlets published under the name of 'Medical Fakes and Fakers,' and also their excellent work, 'New and Nonofficial Remedies.'

"We are told that success is everything in the eyes of the vulgar and it is useless to deny the fact that some of those who have resorted to non-ethical and unscientific pharmaceutical methods have obtained financial success, but in these days of higher education, of colleges of pharmacy and medicine, he is but a poor member who would degrade his noble calling to the level of charlatans and quacks and where the principal claim to the good will and the respect of his neighbors is the fact that he sells quack medicines at cut rate prices."

HYDROPSIN

Report of the Council on Pharmacy and Chemistry

The Council has adopted the following report and authorized its publication. W. A. PUCKNER, Secretary.

Hydropsin is marketed by the Ernst Bischoff Company, Inc., New York. Its composition is thus described:

"Hydropsin is the standardized dialysate of Digitalis purpurea, Betula alba, Scilla maritima, Juniperis communis, and Herniaria glabra; or, stated otherwise, it is the juice of these drugs, dialyzed and physiologically standardized."

"Each fluid dram represents Digitalysatum 7 gtts., and 2 gtts. each of the dialysates of Betula, Herniaria, Juniper and Scilla."

The composition of Hydropsin must be considered essentially secret since the amounts of the several constituent drugs in a given amount of "dialysate" are not disclosed. The active principle of juniper is a volatile oil which is practically insoluble in water; it is difficult to believe that the "juice" of juniper submitted to dialysis could contain any material amount of the active constituent. No information is given as to the method used whereby the several dialysates are "physiologically standardized." It therefore remains to be proved that the manufacturer of Hydropsin possesses any method whereby the dialysates of juniper (Juniperis communis), birch (Betula alba, the common European birch) and knot weed (Herniaria glabra) are so standardized. The claim is made that:

"Herniaria has long been recognized as one of the most valuable drugs in the treatment of dropsical affections due to cardiac impairment."

On the contrary, Herniaria belongs to that large class of drugs which have been tried, found wanting and abandoned. It is a very old remedy, and the claims made for it are an inheritance from the early herbalists, with whom it was very popular. According to King's American Dispensatory, it was "principally employed to cure *hernia* (hence its name) and to increase the flow of urine. It was also said to increase the flow of bile. . . . Internally and externally, it was praised in *snake-bites*, and the powdered plant was employed to kill maggots on unhealthy *sores* of horses. It was reputed to 'crush' and expel calculi from the kidneys and bladder. . . ."

The Ernst Bischoff Company says that:

"Betula exerts both an antiseptic and stimulating influence on the urinary passages and is particularly serviceable where a catarrhal condition of the bladder exists. When combined with other diuretics, as in Hydropsin, the drug affords highly satisfactory results in the treatment of ascites, cardiac dropsy and hydrothorax."

Birch is another drug which has been discarded. Few textbooks on materia medica even mention it. That it can materially affect the action of such powerful drugs as squill and digitalis is exceedingly doubtful.

An unwarranted implication—that in this preparation the powerful drugs digitalis and squill have been deprived of their dangerous qualities—is the assertion:

"Dialysis, removing all resins and colloidals, results in better tolerance on part of sensitive patients, and in more rapid absorption and elimination; which, in turn, means early therapeutic effects and little or no fear of toxic accumulation."

That removal of colloids and resins materially affects the tolerance of these drugs is improbable. To claim that because of their removal, there need be "little or no fear of toxic accumulation" is utterly without warrant. The claim that one preparation containing digitalis is less likely to produce cumulative effect than any other digitalis preparation is contradicted by a mass of evidence.

It is claimed that Hydropsin affects "favorably all forms of DROPSY or Edema that are at all amenable to medical treatment." There can be no question but that squill and digitalis, or, better, either singly, used in suitable cases, may relieve dropsical effusions; but to claim that such a complex mixture as Hydropsin can favorably affect all forms of dropsy that are amenable to medical treatment is on its face unwarranted.

The claim is made that:

"By reason of its unusual potency and relative harmlessness, Hydropsin may be employed to great advantage in all cases where it is desirable to increase the volume of urine without injury to the renal structures."

On the basis of the claimed composition, the action of Hydropsin must be essentially that of digitalis or of digitalis and squill. Consequently, if it possesses "unusual potency," it cannot possess "relative harmlessness," and vice versa. Neither digitalis nor squill should be employed "in all cases" of nephritis, even if it is "desirable to increase the volume of urine."

The composition claimed for Hydropsin brands it as an irrational mixture in which potent drugs are combined with, and more or less covered up by, others that are obsolete and inefficient. The name, instead of indicating its composition, suggests diseases in which it may be thoughtlessly and indiscriminately used. The claim that the danger of toxic or cumulative action has been removed, if accepted by physicians, tends to uncritical use with possible disastrous results. Hydropsin is ineligible for New and Nonofficial Remedies because of conflict with Rules 1, 2, 6, 8 and 10.

DIGITALYSATUM

Report of the Council on Pharmacy and Chemistry

The Council has adopted the following report and authorized its publication. W. A. PUCKNER, Secretary.

Digitalysatum is sold in the United States by Ernst Bischoff Company, Inc., New York. The firm claims that it is a dialysate prepared from the juice of freshly gathered digitalis, containing all the active principles, and representing the fresh plant weight for weight. It is said to be standardized physiologically and to contain 12 per cent. alcohol. Sterisol-Digitalysatum, intended for injection, appears to be the "dialysate" without alcohol, diluted with equal parts of physiologic sodium chlorid solution. The Council some years ago found both products ineligible for New and Nonofficial Remedies because of unwarranted therapeutic claims. The preparations are still being advertised to physicians under claims which imply superiority to all other digitalis preparations. For instance:

"Digitalysatum is the diuretic *par excellence* in cardiac insufficiency . . ."

"Digitalysatum as a diuretic and cardiac stimulant is in a class by itself, being quick of action, uniform in strength, and well tolerated."

"Digitalysatum differs from other forms of digitalis in these respects: . . . Digitalysatum is free from fat, resins and colloids, and is therefore well-borne by sensitive patients—the young and the feeble—and is quickly absorbed and eliminated. . . ."

The Council has elsewhere[1] expressed the conviction that tincture of digitalis produces the full therapeutic effects of digitalis; that, when properly made, the tincture is as stable as any liquid preparation of digitalis now available, and that attempts to enhance the reputation of proprietary products by exaggerating the disadvantages of the official preparation are to be deplored. No adequate evidence is offered of the claimed superiority of action of Digitalysatum.

1. Report on Proprietary Digitalis Preparations, THE JOURNAL A. M. A., Dec. 4, 1915, p. 2024.

By implication, the claim is made that Digitalysatum is superior to other digitalis preparations in respect to toxicity:

"Free from fat, resins and colloidals, it is always well borne and is quickly absorbed and eliminated. No case of toxic accumulation (faulty elimination) has ever been reported."

That Digitalysatum is free from the dangers of toxic cumulation is highly improbable; in fact, it is inconsistent with the statement that the preparation contains all the constituents found in the fresh plant. Even if instances of cumulative action have not been reported this does not prove that such cumulative action does not occur. The tincture of digitalis has the systemic side-effects of digitalis in no greater degree than the various proprietary preparations. Attempts to create the impression that Digitalysatum possesses all the virtues of digitalis without its chief disadvantage are to be condemned as likely to lead to incautious use of the preparation.

These exaggerated claims are in the main made indirectly, but they are none the less inimical to sound therapy. The Council therefore declared Digitalysatum ineligible for New and Nonofficial Remedies and voted that this report be published.

STILL AT IT

"Under the deceptive heading 'Making Cod Liver Oil Palatable,' the *Charlotte Medical Journal* in its December issue prints a boost for 'Cord. Ext. Ol. Morrhuae Comp. (Hagee),' or, as it is generally known to the drug trade, 'Hagee's Cordial of Cod Liver Oil.'

"The boost intimates that this is a preparation in which cod liver oil has in some way been rendered palatable, and then goes on to say that this is a cod liver oil product which 'has not suffered the least loss of those essential elements which make the crude oil such a high-class reconstructive.'

"At first sight one might question whether a cod liver oil product which contains absolutely no cod liver oil had not suffered the loss of essential elements. But a closer reading discloses a significant qualification, namely, the phrase, 'those elements which make the crude oil such a high-class reconstructive.'

"The boost is misleading from beginning to end. The manufacturers have not succeeded in this preparation in 'making cod liver oil palatable,' nor does their preparation in any way possess the virtues of cod liver oil. These claims have again and again been refuted, but they continue to be published—at a price, but rarely in reputable medical journals."

The above is quoted from the *Weekly Bulletin* of the Department of Health of the City of New York. The *Bulletin* is issued for the enlightenment of the public.

Correspondence

Bloodless Operation for Hemorrhoids

To the Editor:—According to an abstract of an article in the *Zentralblatt für Chirurgie* by G. Tillmann on this subject (The Journal, Nov. 20, 1915, p. 1860), "Tillmann seizes the well everted nodule with a long clamp and takes a mattress suture back and forth in the tissues just below the clamp. The nodule is cut off close to the clamp and the raw edges are sutured together," etc.

In the essential points the Tillmann operation appears to differ little, if any, from that performed for many years by Dr. Samuel T. Earle of Baltimore. From 1902 to 1904 I saw Dr. Earle perform many times an operation which he called his own "modification of Whitehead's operation." The chief advantage over the Whitehead operation was the prevention of considerable further loss of blood in patients who were already greatly weakened by months or years of bleeding hemorrhoids. My observation of his work and results convinced me of the truth of every claim Dr. Earle made for his operation.

The operation as done by Dr. Earle was, in brief, as follows: The hemorrhoidal area to be removed was brought down in the usual way. An ingeniously curved rectal clamp of his own design was clamped on it for about one-third the areal circumference. With Hebb's specially curved scissors, also very ingeniously designed, the area thus clamped was removed. With the clamp still in position, a running catgut suture was used, sewing through skin and mucous membrane and around the clamp. Removing the clamp, this continuous suture was drawn taut by rapid and successive traction on the several loops, thus approximating the wound edges and arresting hemorrhage simultaneously. An assistant kept the suture taut while the operator repeated the steps just described in removing the hemorrhoids. About three such clampings were usually necessary. It was remarkable how practically bloodless the whole operation was. A detailed description of the operation will be found in the section on rectal surgery, Bryant and Buck's "Surgery," written by the originator of the operation.

Richard M. Nelson, M.D., Atlanta, Ga.

Concise Writing

To the Editor:—May I preach a short sermon on concise writing. The necessity for it may be found in almost any medical journal opened at random. I will select as my text the last paragraph of an excellent article in a recent number of The Journal. The writer states, in effect, that in fifty cases of skin disease on ordinary diet, the blood examined after meals showed little if any increase of sugar, and adds:

"And since the dermatologic manifestations of diseased conditions are frequently dependent in part on internal conditions, it is felt that a further study of this problem may throw light on certain forms of dermatoses in which a high sugar content will infer a probable alimentary hyperglycemia, the proper treatment of which may help solve the all-too-frequent difficulty of the dermatologic therapy."

When I was at school a boy asked the teacher why it rained on a certain day in many successive weeks. The latter replied that it was owing to the hebdomadal periodicity of the meteorological phenomena. Many of us are tempted to write as that teacher talked, and some unfortunately yield to the temptation. Long words are indeed impressive, and incomprehensible sentences are often judged to be very profound but skipped by the hasty reader.

After a hard struggle with the sentence quoted, I have decided that the writer wished to say that, since skin diseases are often of internal origin further study may show that certain ones with hyperglycemia are due to excess of sugar in the food, the removal of which may aid the cure. My translation of the sentence may not be absolutely correct. If so, it is perhaps less my fault than that of the writer, who overlooked the dictum that "perspicuity is the fundamental element of style." I trust he will forgive this criticism of his diction, since I fully appreciate the importance and excellence of the work he is doing, and write this letter with no desire to be either pedantic or disagreeable, but for the benefit, as I hope, of those who write, and particularly those who read, our current medical literature.

George Henry Fox, M.D., New York.

Editorial Sins

To the Editor:—One almost fears to incur editorial displeasure by offering unsolicited criticism. I like The Journal, its form and the character of its reading matter, and I may add that through the medium of its editorials I like the editor. As a subscriber I feel an interest, and as a Fellow a just pride in the weekly issue. Because of this any faultiness in editing is the more likely to arrest attention and convey an impression.

The editorial sins to which I have reference and which are the motive of the present communication are to be found in the issue of Dec. 11, 1915. On the first page in paragraph 3, line 8, "drank" should be "drunk." On page 2078, Hassin's article, paragraph 2, description of Gennerich's method, the dose of neosalvarsan to be given intraspinally as described would, I believe, be fatal. There is ambiguity at the end of this paragraph, a very serious matter in connection with a

therapeutic measure demanding caution and precision of technic. And again, for an example of awkwardness of statement and contradictory conclusion kindly permit me to refer you to the footnote at the bottom of the first column on page 2081, Warden's article. Even a footnote is sometimes important, and demands quite as much care as the text of which it is so frequently explanatory. If some such revision as the following had been made, the substance of the note might have been intelligible on first reading: It has been a matter of common observation that autolysates distinctly inhibit the growth of the gonococcus. Should conditions within the body and in artificial culture be at all comparable, it may be postulated (not "seen") that the presence of such antibodies may be detrimental to the continued existence of gonococci in the tissues.

I hope that in calling your attention to these offenses I in turn have given none. My criticism is meant in the kindliest spirit, and arises from a desire to see a splendid journal made better.

MELVILLE SILVERBERG, M.D., San Francisco.

Eczema and Formic Acid

To the Editor:—In the summer, noticing that some of the dahlias in my garden failed to grow well, I went literally to the root of the matter and found there the troublesome inset, *Aphis radicis* with *Formica flava*, the yellow ant, encouraging its depredations. I crushed numbers of the ants with my fingers, noticing at the time the pungent odor which they emitted, which was of course due to formic acid, especially abundant in this species.

At about this time, my hands began to present symptoms of eczema—itching (much aggravated after the taking of salted food) and formation of vesicles, with subsequent thickening and cracking of the skin. I did not associate these symptoms with the handling of the ants until they had recurred under the same circumstances for several seasons. I now avoid the annual attack of pseudo-eczema by avoiding the yellow ants.

The facts appear to me to suggest the dependence of genuine cases of eczema on the presence of formic acid, since this acid has been detected by various chemists in the perspiration.

E. M. B. T., New Bedford, Mass.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SENDING NARCOTICS BY MAIL

To the Editor:—In your answer to R. D. Z. (Queries and Minor Notes, THE JOURNAL, Dec. 18, 1915, p. 2187) you are correct as to the provisions of the Harrison act in re delivery of narcotics by U. S. mail, but I believe that you will find that the postal regulations specifically prohibit the shipment of these drugs by mail.

H. E. GOETZ, M.D., Knoxville, Tenn.

To the Editor:—R. D. Z. asks in regard to delivery of drugs by mail. I suppose he means narcotic drugs. It is not a violation of the Harrison law as you say, but is a violation of another forbidding the transportation of narcotic drugs in any form or amount by mail.

M. T. CLARK, M.D., Temple, Okla.

ANSWER.—Several similar letters have been received, questioning the validity of the statement in THE JOURNAL for December 18, and asserting that while the Harrison Narcotic Law itself did not prohibit the shipping of drugs by mail, such a prohibition was to be found in the federal postal laws. An examination of these laws will show that the general shipping of poisons by mail is prohibited. But this prohibition in no way applies to the shipment of drugs and anesthetics for bona fide medicinal purposes. The postal laws and regulations specifically provide that physicians, dentists and veterinary surgeons may send drugs by mail if properly identified, such as by placing on the package the name of the physician, the contents of the package, the purpose for which it is intended, and that it is a poisonous substance. A druggist can fill a physician's prescription and mail the drug to the designated patient, provided he complies with the requirements as above set forth.

HOW TO RETURN A MANUSCRIPT—TWO EXAMPLES

There is no more difficult task for an editor than that of returning manuscripts; he is an adept who can do it without giving offense. The following is an example of the way a Chinese editor did it. We have already printed this communication, but reproduce it again for the sake of comparison.

"Most venerable brother of the sun and the moon, your slave bows at your feet. I kiss the earth before you. I implore your permission to speak and to live. Your most venerated manuscript passed before our eyes, and we were ravished by it. With fear and trembling I return it. If I ventured to publish it the emperor would order me to take this jewel as a model and never depart from it or have the audacity to publish anything inferior to it. But my long experience of letters has taught me that such pearls can be produced once, and once only, in ten thousand years. So I must return it. I entreat you to forgive me. I am at your feet, the slave of slaves."

While we doubt if an Occidental will ever be able to compete with an Oriental in this matter, we have one editor in this country who comes very near equaling our Chinese editor. The recipient of the letter printed below forwarded it with his manuscript when submitting it to THE JOURNAL:

"My Dear Doctor:

"If you knew how many times I had read your paper on ——— and how much thought I had given it, you would appreciate the regret that it gives me to return it to you without publishing it.

"It is an excellent story, well told, and contains an immense amount of food for thought, but I am foregoing the pleasure of printing it because it is not a story that would appeal to that class of people who look to ——— for their inspiration.

"I am sorry that I kept the paper so long, but I know that any medical journal will be eager to publish it, and it is as good now as it was when I first got it; indeed, it is a paper that will grow better and for many years will not lose its thought breeding and inspiring character.

"Regretting that the paper is not for the columns of ———, and regretting also that I have kept you waiting so long, I am

"Sincerely yours,

"———."

REFERENCES TO ARTICLES ON SYPHILIS OF THE STOMACH

To the Editor:—Please refer me to literature on gumma of the stomach.

L. F. CARLTON, M.D., Tampa, Fla.

ANSWER.—The following are references on syphilis of the stomach:

Jores: Demonstration von gummöser Magensyphilis, *Verhandl. d. deutsch. path. Gesellsch.*, 1907, Jena; 1908, xi, 319.

Meyer, J. S.: Syphilitic Tumors of the Stomach, *Weekly Bull. St. Louis Med. Soc.*, 1910, iv, 134.

Arkin, A.: Acquired Syphilitic Ulcers of the Bowel, *Tr. Chicago Path. Soc.*, 1912, viii, No. 7.

Villacian, L., and Bazan, F. A. C.: Syphilis of the Stomach, *Semana méd.*, June 6, 1912.

Meyers, J.: Syphilis of Stomach, *New York State Jour. Med.*, September, 1912.

Meyers, J.: Syphilis of Stomach, *Albany Med. Ann.*, October, 1912; abstr., THE JOURNAL, Nov. 9, 1912, p. 1742.

Morgan, W. G.: Syphilis of Stomach: Report of cases, *Am. Jour. Med. Sc.*, March, 1915.

Einhorn, M.: Syphilis of Stomach: Report of cases, *Med. Rec.*, New York, March 13, 1915.

Downes, W. A., and LeWald, L. T.: Syphilis of the Stomach: Report of Eight Cases with Roentgenologic Findings, THE JOURNAL, May 29, 1915, p. 1824.

Einhorn, M.: Syphilis of the Stomach, *Arch. f. Verdauungskr.*, June, 1915.

Mühlmann, E.: Syphilitic Contracted Stomach, *Deutsch. med. Wchnschr.*, June 17, 1915, abstr., THE JOURNAL, Aug. 7, 1915, p. 564.

Smithies, F.: Syphilis of the Stomach: A Clinical Study of Twenty-Six Instances of Dyspepsia, Associated with Positive Wassermann-Noguchi Reactions, THE JOURNAL, Aug. 14, 1915, p. 572.

Fischer, L. C.: Syphilis of Stomach and Intestines: Report of Cases, *Georgia Med. Assn. Jour.*, September, 1915.

Examine Teachers for Suspected Tuberculosis.—The department of health of New York City, in cooperation with the city superintendent of schools, has devised a plan by which teachers suspected of having tuberculosis will be examined by physicians of the department of health. Principals of schools are requested to report teachers who are in such physical condition as to be unable properly to do their work and whom there is reason to regard as probable subjects of tuberculosis. A woman physician will be detailed to examine women teachers if they so desire.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alabama: Montgomery, Jan. 11. Sec., Dr. W. H. Sanders, Montgomery.

California: Sacramento, Jan. 11. Sec., Dr. Charles B. Pinkham, Room 527 Forum Bldg., Sacramento.

District of Columbia: Washington, Jan. 11. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

Illinois: Chicago, Jan. 13-15. Sec., Dr. C. St. Clair Drake, Springfield.

Indiana: Indianapolis, Jan. 11. Sec., Dr. W. T. Gott, 84 State House, Indianapolis.

Iowa: Des Moines, Feb. 8-10. Sec., Dr. G. H. Sumner, State House, Des Moines.

Kansas: Topeka, Feb. 8. Sec., Dr. H. A. Dykes, Lebanon.

New Mexico: Santa Fé, Jan. 10. Sec., Dr. W. E. Kaser, East Las Vegas.

New York: Albany, Buffalo, New York and Syracuse, Jan. 25-28. Chief, Examinations Division, Mr. Harlan H. Horner, State Education Bldg., Albany.

Oklahoma: Oklahoma City, Jan. 11-12. Sec., Dr. R. V. Smith, 502 Daniel Bldg., Tulsa.

Pennsylvania: Philadelphia, Jan. 18-20. Sec., Mr. Nathan C. Schaeffer, Harrisburg.

South Dakota: Pierre, Jan. 11. Sec., Dr. P. B. Jenkins, Waubay.

Vermont: Montpelier, Feb. 8-11. Sec., Dr. W. Scott Nay, Underhill.

Wisconsin: Madison, Jan. 11. Sec., Dr. J. M. Dodd, 220 E. Second St., Ashland.

Medical School Mergers

The amalgamation of medical institutions, a process which has been going on in America for more than a decade, is happily still in progress. Nearly all of our independent medical colleges have either formed a union with a university or have become defunct, the principal exceptions being a few of the larger detached schools in the eastern part of the United States. It is only natural that the latter should be seeking an honorable amalgamation with universities, realizing, as they must, that the remaining independent medical schools are being put to a great disadvantage as the result of previous mergers in other parts of the country, and also in consequence of the trend toward higher educational standards.

The project to merge the Medico-Chirurgical College of Philadelphia with the University of Pennsylvania, the former to become the graduate department of the latter, is being seriously considered. This union would be in line with the trend of modern progress in medical education elsewhere throughout the country. It is hoped by those advocating the merger that ultimately the Philadelphia Polyclinic and the Jefferson Medical Colleges will also be consolidated with the University of Pennsylvania. Such a triple amalgamation would increase the efficiency of the individual units, and is therefore altogether desirable. That there are still more so-called undergraduate colleges than are required in this country, in view of the changed conditions of medical practice, is undoubted. On the other hand, larger opportunities for graduate instruction with ample modern laboratory equipment and clinical facilities are still needed. This deficiency, however, has been recognized by certain institutions, notably Harvard University, the Johns Hopkins University, the University of Minnesota and the Tulane University of Louisiana. These institutions have organized departments of graduate instruction, but there is room for additional schools if properly organized, well equipped and well officered.

In order to obtain the best educational results, however, these courses demand a separate physical plant, made up of a hospital with ample clinical facilities and appropriate laboratories, in which they are to be conducted, for the convenience and economy of time, of the graduate students. It is an encouraging sign of the times that the process of amalgamation of faculties and equipment in the United States bids fair to be carried to a logical conclusion. With a proper combination of forces and activities throughout the country, America should, within a short period of time, lead the world in both undergraduate and postgraduate education.

Maine July Report

Dr. Frank W. Searle, secretary of the Maine State Board of Registration of Medicine, reports the written examination held at Augusta, July 6-7, 1915. The total number of subjects examined in was 10; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 42, of whom 41 passed and 1 failed. The following colleges were represented:

PASSED	Year Grad.	Per Cent.
Bowdoin Medical School	(1915)	80, 80, 81, 81, 81, 82, 83, 83, 84, 84, 85, 85, 85, 86, 86, 86, 87, 87, 88, 89, 92.
College of Physicians and Surgeons, Baltimore	(1914)	83
University of Maryland	(1914)	91
Boston University	(1903) 82; (1915)	83, 86
Coll. of Phys. and Surgs., Boston	(1913) 76; (1915)	81, 81, 82, 83
Harvard University	(1913) 87; (1914) 79; (1915)	87, 87, 89
Tufts College Medical School	(1914)	83
Dartmouth Medical School	(1914)	86
University of Pennsylvania	(1913)	85
University of Vermont	(1882)	80
National School of Medicine, Mexico	(1910)	79
FAILED		
Eastern University*	(1913)	57

* This college was officially reported as not recognized by the Maryland State Board of Medical Examiners.

Massachusetts July Report

Dr. Walter P. Bowers, secretary of the Massachusetts Board of Registration in Medicine, reports the oral, practical and written examination held at Boston, July 13-15, 1915. The total number of subjects examined in was 13; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 156, of whom 128 passed, including 13 osteopaths, and 26 failed, including 8 osteopaths. One candidate's papers were laid on the table and one was not rated on account of false oath. The following colleges were represented:

PASSED	Year Grad.	Per Cent.
Georgetown University	(1915)	80.6
Atlanta Medical College	(1915)	78.3
University of Kansas	(1912)	78.7
Tulane University of Louisiana	(1910)	78.2
Bowdoin Medical School	(1915)	75.7, 79
Baltimore Medical College	(1898)	75
College of Phys. and Surgs., Baltimore	(1886) 77.5; (1913) 76.5; (1915)	76.4
Johns Hopkins University	(1913)	82.2
Boston University	(1903) 75; (1915)	75, 76.1, 76.8, 77.2, 77.6, 78.5, 79, 80.4, 81.6, 82.4
College of Phys. and Surgs., Boston	(1915)	76.6
Harvard University	(1912) 78.4; (1913) 83.2; (1914)	76.5, 77.1, (1915) 75, 75.3, 75.8, 76.5, 76.5, 78, 79.1, 79.1, 79.7, 79.7, 80.1, 80.2, 80.3, 80.5, 80.5, 81.5, 81.7, 82.6, 82.7, 82.8, 83, 83.1, 83.5, 84.1, 86.9
Tufts College Medical School	(1911) 75.6; (1914) 76, 76.7, 77.5; (1915)	75, 75, 75, 75, 75.2, 75.3, 75.7, 76.2, 76.3, 76.4, 76.5, 76.6, 76.6, 76.8, 77.1, 77.2, 77.5, 77.7, 77.9, 78.6, 78.6, 78.7, 78.9, 79, 79, 79.5, 79.7, 79.8, 80.1, 80.1, 80.1, 80.5, 80.7, 80.7, 80.9, 81, 81.1, 81.1, 82, 82.1
St. Louis University	(1913)	78.1
Columbia University, College of Phys. and Surgs.	(1915)	79.6
Long Island College Hospital	(1914)	80
New York Homeo. Med. Coll. and Flower Hosp.	(1915)	78.3
University and Bellevue Hospital Med. Coll.	(1908)	78.6
University of Buffalo	(1907)	76.6
Starling-Ohio Medical College	(1910)	82.2
Western Reserve University	(1909)	81.2
Jefferson Medical College	(1914)	76.2
Temple University	(1913)	81
University of Pennsylvania	(1899)	75
Woman's Medical College of Pa.	(1910) 78.5; (1915)	83.4
Memphis Hospital Medical College	(1911)	75
University of Vermont	(1906) 76.2; (1908) 75.4; (1912)	77
University of Toronto	(1907)	75.7
Catholic University of Louvain	(1894)	80.2
FAILED		
Georgetown University	(1913)	72.2
Hahnemann Med. Coll. and Hosp., Chicago	(1901)	62.8
Bowdoin Medical School	(1915)	72.7
College of Phys. and Surgs., Baltimore	(1915)	73.1
Maryland Coll. of Eclectic Med. and Surg.*	(1914)	56, 65.1
Maryland Medical College	(1913) 64.8,	66.2, 69.8
College of Phys. and Surgs., Boston	(1911)	69.7
Tufts College Medical School	(1914) 71.7; (1915) 70.7,	71.7, 72.6
University of the South	(1902)	65
University of West Tennessee	(1913)	67.2
Laval University	(1915)	71
Montreal School of Med. and Surg.	(1915)	65.6

* This college was officially reported as not recognized by the Maryland State Board of Medical Examiners.

New Mexico July Report

Dr. W. E. Kaser, secretary of the New Mexico Board of Health and Medical Examiners, reports the written examination held at Santa Fé, July 12, 1915. The total number of subjects examined in was 13; total number of questions asked, 100; percentage required to pass, 75. Twelve candidates were licensed on credentials and 1 through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Total No. Licensed
University of Colorado	(1914) (1915)	2
Atlanta Medical College	(1914)	1
Northwestern University	(1913)	1
Kansas Medical College, Topeka	(1907)	1
Kentucky School of Medicine	(1893)	1
Louisville Medical College	(1901)	1
Washington University	(1913)	1
Miami Medical College	(1903)	1
Jefferson Medical College	(1904)	1
University of Pittsburgh	(1909)	1
McGill University	(1881)	1

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Memphis Hospital Medical College	(1904)	Oklahoma

Book Notices

THE BABY'S FIRST TWO YEARS. By Richard M. Smith, M.D., Assistant in Pediatrics, Harvard Medical School. Cloth. Price, 75 cents. Pp. 156, with illustrations. Boston: Houghton Mifflin Company, 1915.

Although the author claims no originality for the material in his book, it is unique in arrangement and expression of thought. The book is divided into three parts, the first giving rules for the care and feeding of infants, the second consisting of general suggestions which, the author states, may be modified to meet the requirements of the individual baby, and the third containing recipes and charts. Included in the second part is a calendar illustrating the typical day of a healthy baby. Such a calendar is especially valuable in its indication of the regularity and system which should mark the care of the infant.

The author considers proprietary baby foods as of two kinds, "those to be made with milk and those to be made without milk." The former, he says, are expensive additions to modified cow's milk and are not necessary. The latter do not furnish a satisfactory food. On the whole, the use of these preparations should be limited to the rare instances when an infant cannot digest cow's milk, and they should then be used only with the advice of the physician.

Though brief, the text of the book omits nothing which the inquiring mother might wish to or should know. The book is a practical one, and worthy of recommendation to the intelligent.

DISEASES OF INFANTS AND CHILDREN. By Henry Dwight Chapin, A.M., M.D., Professor of Diseases of Children, New York Post-Graduate Medical School and Hospital, and Godfrey Roger Pisek, M.D., Sc.D., Professor of Diseases of Children, New York Post-Graduate Medical School and Hospital. Third Edition. Cloth. Price, $3.25 net. Pp. 578, with 179 illustrations. New York: William Wood & Co., 1915.

In this edition the authors have revised several portions of their book. Among the new topics added are albumin milk feeding, the Schick test and the luetin test. Matter of minor importance, such as the rarer diseases and various laboratory tests, is printed in small type; such material forms about one tenth of the text. Much of it is laboratory diagnostic technic which appears more detailed in books devoted wholly to this subject. The chapter given to therapeutics is especially sane, and indicates that the authors have kept abreast of recent progress in treatment. The illustrations, especially the colored plates, are excellent, but the plate showing a comparison of various types of indicanuria seems somewhat far fetched, inasmuch as numerous skeptics are inclined to question the interpretation of any indican test. As a text for students or a guide to the practitioner, this book may be advised for its brevity, directness and general up-to-dateness.

Medicolegal

Damages Allowed for Injuries Causing Convulsions

(*Sherwood vs. Crescent Creamery Co.* (*Minn.*), *153 N. W. R. 525*)

The Supreme Court of Minnesota says that the plaintiff, a young woman stenographer earning $50 a month, was injured, in April, 1914, by an automobile truck belonging to the defendant. It was not claimed that the evidence did not justify a finding that the defendant was negligent, or that there was any negligence on the plaintiff's part. The principal contention on this appeal was that the damages awarded by the jury, $6,750, were excessive. Before the accident, the plaintiff was a strong, healthy girl. After the accident, she had frequently recurring fainting spells, attacks that were called by her expert "epileptoid," and by the experts for the defendant, "hysterical convulsions." That they were genuine, and not feigned, attacks, was not doubted by the defendant's experts.

The plaintiff had not been able to go out alone, and had to be watched the entire time. She was pale and had lost weight. The causal connection between the accident and her condition at the time of the trial was proved. In short, the evidence justified a substantial verdict. But there was no organic trouble, and the evidence as to the probable duration of the plaintiff's condition was that she would entirely recover.

The plaintiff's expert testified that the prognosis would be fair, and the probabilities were that she would get over the attacks. As to when, the witness said that this would depend on her regaining her lost weight, and her general health, and that the end of this litigation would be an important factor in her recovery. The defendant's experts agreed on this.

The court was unable to find any evidence that would warrant a finding that the plaintiff's injuries were permanent, or that her condition, serious at it was, would last for any length of time in the future. Under these circumstances, the court thinks that $5,000 would be ample compensation, and that the evidence would not sustain any verdict in excess of that sum. Wherefore a consent within ten days to a reduction of the verdict was required, under the penalty that otherwise a new trial would be granted.

Not Entitled to Recover for Cystitis

(*Moses vs. St. Barnabas Hospital* (*Minn.*), *153 N. W. R. 128*)

The Supreme Court of Minnesota affirms an order denying the plaintiff a new trial after this action, brought by her to recover damages for injuries alleged to have been sustained by her while a patient in the defendant hospital, was dismissed at the close of her case. The court says that the only question demanding attention was whether any evidence was presented which would justify submitting to the jury the issue of the competency, qualifications, or negligence of the nurses who were assigned to the care of the plaintiff. This court's examination brought to light no such evidence. The contention of the plaintiff was that she contracted cystitis by the negligent use by the nurse of an unclean catheter. While the evidence showed that a catheter was employed in her treatment, by two of the nurses, there was no evidence whatever that it was unclean or not in proper condition for use. No witness gave any testimony tending directly or indirectly to establish that fact. The opinion of the physician, called by the plaintiff, that in his opinion the plaintiff's trouble was occasioned by the use of a "dirty catheter," was not founded on any evidence in the case, and was the naked conclusion of the witness. Cystitis does not necessarily follow from the use of a catheter; it may be contracted in other ways, and no inference could be indulged in this case that its use was the cause of the plantiff's infection, or that it was unclean and not in proper condition for use. Wherefore the court holds that the evidence failed to sustain the allegations of incompetence or negligence, and that the action was properly dismissed.

Society Proceedings

NORTH SIDE BRANCH OF THE CHICAGO MEDICAL SOCIETY

Regular meeting, held Nov. 12, 1915

The President, Dr. Clarence L. Wheaton, in the Chair

Auricular Fibrillation

Dr. James B. Herrick: The ordinary train of events in the undiseased heart, whether the beat be slow or rapid, is for the auricles to contract before each ventricular systole, an appreciable interval of about 0.15 second intervening, during which time the stimulus is traveling the bundle of His and its branches. Under certain conditions, the auricle remains distended in diastole; its power of contracting as a unit has gone; its muscular action is represented by numerous quiverings or twitchings of fibers and small patches of muscle. This is auricular fibrillation. So far as ability to propel blood through the atrioventricular orifice is concerned, the auricle is paretic, the blood passes these openings by virtue of gravity, the *vis a tergo* in the veins, the suction effect of ventricular diastole, etc. The signs to be sought for in auricular fibrillation are: 1. A rapid action of the ventricle—this is generally found. 2. An absolute irregularity in the time of the beats. 3. An irregularity also as to the strength of the beats as revealed by the pulse, the cardiac impulse or the cardiac sounds. 4. Without instruments of precision it is practically impossible to show the absence of auricular systole and the presence of the twitching of the auricular musculature, the fourth characteristic feature. 5. Not only is there the absence of the auricular wave in the phlebogram, with a venous pulse of the ventricular or positive type, but at times a true tricuspid incompetence with the ventricular venous pulse still more pronounced. A positive venous pulse may be present with tricuspid incompetence, when the auricle is not in fibrillation. 6. The absence of auricular systole will sometimes materially alter the murmurs of valvular disease, the particularly striking example being the change of the murmur of mitral stenosis from its presystolic, that is, auricular systolic location, to a place early in diastole. 7. One is reasonably safe in saying that a plain irregularity of the heart, when the beat is over 120 to the minute, is due to auricular fibrillation. Flutter and tachycardia are rhythmic. Extrasystoles generally disappear as the heart becomes as rapid as 120. When the heart is comparatively slow, as under the influence of digitalis, the beats may seem equal in strength and in time between beats, or they may resemble extrasystole. 8. With extrasystole an increased rapidity of the heart beat will generally cause extrasystole to disappear. Sometimes in patients undergoing examination, the increased rapidity of the heart will cause the irregularity to disappear wholly or partly. With auricular fibrillation the opposite is the rule. The heart, unless steadied by treatment, is fit to do its work in only a poor way. Evidences of decompensation are more or less in evidence. 9. Often there is a combination of cardiac irregularities. I have seen in the terminal incompetence of mitral stenosis a most pronounced fibrillation, with numerous extrasystoles, with little runs, like tachycardia. Instances of heart block with auricular fibrillation are also recorded. Perhaps 50 per cent. of cardiac irregularities are due to auricular fibrillation. No single lesion has been found postmortem to explain it, though acute and chronic inflammatory and degenerative changes are described at times in the sino-auricular node, and in various places in the auricles. As strikingly seen in mitral stenosis, in which valve lesion auricular fibrillation is a frequent event, the auricle is often greatly distended, and a condition of fatigue may, perhaps, be assumed as having been present. In some instances an auricle that is anatomically without flaw has been found. The prognosis has been generally held to be bad, though the condition may last for years, even ten or more. By contrast, extrasystole has been viewed as more benign and of good prognosis. Fibrillation of the auricle has been known to occur, and then permanently disappear, as in pneumonia. The prognosis must be based on the size of the heart, the valvular, pericardial or myocardial disease in evidence, the presence or absence of dyspnea, cyanosis, engorged liver, etc., as indicating cardiac incompetency. Another point to be kept in mind is that many cases of fibrillation are peculiarly amenable to the good influences of digitalis, and from this point of view the condition is favorable.

Treatment of Auricular Fibrillation

Dr. Robert H. Babcock: Excepting in certain acute infections, when there may be a paroxysmal auricular fibrillation, when fibrillation of the auricles is fully established, the heart's rhythm rarely if ever becomes normal. In this class of cases digitalis achieves its most brilliant results. Digitalis impedes the transmission of the incoordinate impulses of the auricles through the conducting fibers to the ventricles; therefore, it slows the contractions of the ventricle, and permits a longer period of diastole. It also probably affects the musculature of the ventricles in such a way as to strengthen the ventricular contractions, thereby improving the force of the pulse, regulating it to some extent, and overcoming in a measure the dilatation which is a result of the auricular fibrillations. This type of arrhythmia is encountered most commonly in connection with mitral disease. Three indications are to be met in these cases: (1) relief of the insomnia and dyspnea; (2) relief or lessening of visceral engorgement, and (3) slowing down and strengthening the heart's action. The first is best accomplished by giving a hypodermic injection of morphin, heroin or codein. The second indication is met by the use of a cathartic, say, 10 grains of blue mass with one-half grain of hyoscyamus at night, followed the next morning by a saline. So long as the visceral congestion continues, the cathartic should be given daily. The third indication is met by the use of digitalis or strophanthus. Regarding the Carrell diet in these cases, limiting the patient to 20 ounces of milk a day, I customarily give more than 20 ounces, namely, 6 or 8 ounces every three hours during the day, for the first two or three days.

As to digitalis, when prompt effect is desired, it should be given intravenously. Very close watch must be kept for the first signs of digitalis intoxication, and in this the pulse is a very reliable guide. The heart should be examined every day. When the patient is allowed to get up and resume his ordinary occupation, digitalis should be continued in carefully supervised dosage. Regarding strophanthus, one may administer a milligram, a whole cubic centimeter or a half cubic centimeter intravenously. The great drawback to the use of this drug, however, is that it is exceedingly irritating, and if any of it leaks into the tissues it produces much pain and serious infiltration of the tissues. It cannot be given intramuscularly as may the digitalis. One must not throw strophanthus into the vein of a patient who has been taking digitalis until sufficient time has elapsed for the elimination of the digitalis. There is positive danger of the heart being brought to an arrest by the strophanthus. These patients must be taught to adjust their habits of life to the ability of the heart to endure strain. The prognosis in many of these cases is good, but if the effects of digitalis or strophanthus are badly borne, or the action promptly lost, the prognosis is bad, and the most that can be done is to rely on such means as will tend to overcome the unpleasant effects of the back pressure and greatly restrict the patient's habits as to exercise, diet, etc.

DISCUSSION

Dr. Frank Billings: Auricular fibrillation is the most common irregularity of the heart. One can separate the other irregularities from it often, even without an instrument. Extrasystole is sometimes associated with auricular fibrillation, but more often not. Heart block is not difficult to recognize, and while heart block may be associated, it is rare, unless it is brought about by digitalis. But the time has come in diagnosis of heart diseases, when one must

make use of instruments of precision. The electrocardiograph is the best of them all, but the polygraph also is a useful instrument. Auricular fibrillation associated with recognizable organic heart disease, especially mitral stenosis, is unfavorable for diagnosis. The presystolic murmur and the thrill of an ordinary typical mitral stenosis may disappear with auricular fibrillation, and especially with decompensation, or, often, what appears to be a mitral insufficiency with a murmur may be simply a relative murmur. In that event the prognosis is very much better than with mitral stenosis. I agree with what Dr. Babcock said regarding the use of morphin and the treatment of visceral stasis. Regarding the Carrell diet, some modifications must be made. I attempt to limit the liquid intake in twenty-four hours to a liter. In auricular fibrillation with mitral stenosis, my experience has been that the digitalis group is almost contraindicated because of the mitral stenosis.

DR. CHARLES SPENCER WILLIAMSON: The difficulty of a diagnosis of auricular fibrillation is a little overestimated. One can find cases in which auricular fibrillation is combined with an extrasystolic arrhythmia, and those cases will defy diagnosis by the ordinary means. But in the average case the condition can be diagnosed without the electrocardiograph in the great majority of cases. In very severe cases of auricular fibrillation, when one needs prompt action, strophanthus is sometimes the remedy *par excellence*, although purgatives should be given every day.

DR. N. S. DAVIS: I have been interested recently in trying to ascertain what may be the action of digitalis which produces the good effect in these cases. Probably the good effect is due to an improved circulation through the heart muscle itself, or to a relief of the dilatation of the heart, but I wish to suggest one other possible explanation. In these cases there is practically no rest for the heart. The period ordinarily occupied by rest is filled with the constant contractions of the auricle. In the normal wave there is a time during which the conduction from the bundle of His is taking place from the auricle to the ventricle. In the cases in which digitalis was given this time was very much lengthened, thus giving the heart a rest—not a period of rest in the normal place or extent, but still a period of rest. Thus, if we can cause a period of rest, whether or not by digitalis or in the right place, we are going to help the heart muscle.

Diagnosis and Medical Treatment of Exophthalmic Goiter

DR. STEPHEN R. PIETROWICZ: I have seen fifty-two cases which exemplify the various stages of this syndrome. Forty-nine of these were in women and three in men. In none was a history of congenital goiter obtained. Hereditary influence was noted in five, on the mother's side. In fifty-two patients some infection was present in the mouth, tongue, teeth, nose, tonsils, pharynx and larynx, and in thirty-five of this group when the infection prevailed on the right side, the right lobe of the thyroid was found to be more enlarged than the left, and in ten, in which the seat of infection was left-sided, an enlargement of the left lobe of the thyroid was noted.

A large percentage of patients of the milder type will recover with absolute rest, both mental and physical, isolation, subdued light, partly forced feeding, and the removal of any pathologic foci existing within the oral cavity. The judgment of a careful, competent and thorough laryngologist should be sought, and whatever surgical measures necessary should be carried out scrupulously in order to rid the patient of the absorption of toxins. All our patients were put on lactic acid ferments, and a marked influence was noted on the general condition of the patient, evidenced in the marked slowing of the heart and decided diminution of nervous symptoms and relief of gastro-intestinal symptoms. We advised the use of fresh buttermilk; lactic acid ferments from artificial mediums may be employed as a substitute. Hydrotherapy is of value, and frequently a change of environment and climate is beneficial. The administration of sodium phosphate and sodium bromid and magnesium sulphate for sedative effect may be advised. One should be very cautious in the administration of the iodids, as the iodin content of the gland is great, and may produce constitutional iodism and overstimulate the thyroid. The injection with boiling water should be left in the hands of a competent surgeon. The use of serum has been successful only in the hands of certain men, and is of questionable value, and as yet cannot be applied as a routine measure. The application of local agents has been a profound failure.

Surgical Treatment of Exophthalmic Goiter

DR. A. J. OCHSNER: For surgical treatment, those patients should be selected who are not curable by the methods which Dr. Pietrowicz has just indicated, and then other patients who are left, in whom the heart is not hopelessly destroyed, dilated, as a result of long-continued hyperthyroidism. When the heart is in a hopeless condition the patients are not benefited much. The general condition of the patient will improve enormously after the hyperthyroidism is removed, but the degenerative conditions do not improve to any marked extent. As regards the time of operation in a given case, we must remember that in these cases there is a definite margin of safety, and it requires the highest class of surgical judgment to determine whether that margin of safety is sufficient for the amount of strain that the proposed treatment will bring to bear. Operations at the time when the margin of safety is relatively great will have a very much lower mortality than in cases in which this feature is not considered. The same principle will also indicate how far the surgeon can go in the operation that has been planned. Bearing all these factors in mind, the sources of danger must be considered, and first of these is the danger from the anesthetic. If the surgeon can quiet the apprehension of the patient by suggestion, then the local anesthetic is to be preferred, especially if the operation is to continue for a long period of time. On the other hand, if he has not this personality, then the fact of the patient being awake will very much more than counterbalance the danger from the anesthetic. The danger from the anesthetic is from three sources: First, from giving too much anesthetic during the time when the manipulations are progressing on the thyroid gland itself. In many of these cases a condition develops during operation which seems to leave an effect on the patient from which he does not recover. This can be avoided by the following plan:

The patient is given one-quarter grain of morphin and 1/100 grain of atropin half an hour before anesthesia is begun, and then is anesthetized by means of the ether drop method. After the patient has been thoroughly anesthetized in the horizontal position, the head is elevated 45 degrees, so as to secure an anemia of the brain, and the operation is begun. No further anesthetic is given. The patient exhales the ether taken during the time she was thoroughly anesthetized, and the anemia of the brain from the position maintains this anesthesia, so that the operation can be completed without pain to the patient, without shock to the nervous system, and with perfect safety from the anesthesia. This form of anesthesia eliminates the further danger of inspiration of mucus, which in operations of this character is secreted in considerable amount. The hypodermic administration of 1/100 grain of atropin reduces the flow of mucus. The third danger, that of pneumonia, is also eliminated. Since we have applied this method of anesthesia we have operated in many hundred cases and have not had one case of pneumonia following the thyroidectomy. The mortality has been reduced correspondingly. Next in importance is traumatism. If a surgeon is gentle in his manipulations, the traumatism naturally is much less, and also the postoperative hyperthyroidism, than if he is a violent surgeon. Another danger which must be guarded against is injury to the recurrent laryngeal nerve and the parathyroids.

DISCUSSION

DR. A. C. CROFTAN: I was interested in Dr. Pietrowicz' reference to finding evidences of infection of the tonsils, alveolar processes, etc., in view of the great importance which these focal infections have acquired, from the thera-

peutic standpoint. I was disappointed that he did not enter further into the treatment of these cases; for instance, nothing was said of the use of autogenous vaccines.

DR. FRANK BILLINGS: While we are satisfied that the complex of symptoms that we call exophthalmic goiter is due to overthyroid secretion, we really, so far as knowledge of the cause of the disease or the diminution of its incidence are concerned, are not much better off now than before. We ought to study a little more systematically what causes the goiter. We can say that there is a glandular involvement of the thyroid that is compensatory. It occurs in the boy and girl, about the time of puberty, when the physical needs of the body call for more secretion. That physiologic enlargement we recognize as compensatory. Then in more recent years we have recognized a real hyperplasia, that is, an infected gland occurring in the course of infectious diseases, generally. Hyperplasia occurs in acute or chronic focal infections, and out of this hyperplasia come these symptoms. We also know that certain environment and certain drinking water produce it. It is possible, of course, that on top of the gland enlargement, physiologically, there may occur a hyperplasia. In discussing this question, one man will say, "This is a medical goiter"; another will say, "This is a surgical goiter." There are no such terms. They are both diseases of the thyroid. The symptoms of exophthalmic goiter represent simply the reaction of the body. We are not going ahead when we spend so much time in discussing the technic of the medical management or the technic of the surgical management of these cases. We want to get at the cause.

DR. COLEMAN G. BUFORD: There is nothing that will clear up this question except experimental work. We have been discussing goiter from too many angles. All of these cases of enlargement, if not outside of the neoplasm proper, are merely different steps in the pathogenesis. What helps to prove this? The very fact that in so many of the cases the facial expression changes, and changes in the size of the thyroid gland take place after the administration of the thyroid extract alone. We have been watching the goiters of children. They come on about the time that tonsils and adenoids have had their damaging cumulative effect on the system. The symptoms manifested in these cases are nothing more than toxic.

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION

Twenty-Eighth Annual Meeting, held at Cincinnati, Dec. 13-15, 1915

The President, DR. BACON SAUNDERS, Fort Worth, Texas, in the Chair

High Versus Low Degrees of Heat as Palliative Treatment for Advanced Cases of Cancer of Uterus

DR. HERMAN J. BOLDT, New York: The galvanocautery treatment, originated by the late Dr. Byrne of Brooklyn, gives more satisfactory results in such cases than any other method of treatment. Radium and Roentgen rays have not been so satisfactory. It has been proved that patients receiving galvanocautery treatment live longer and are free from distressing symptoms. It is comparatively safe when used in cases in which the disease has not advanced so far that the bladder and rectum will probably be injured by a thorough application. Dr. Percy asserts that the application of lower degrees of heat for a longer time has a deeper destructive influence. I gave his method a thorough test for two years, but did not see in any case a superior clinical advantage. A careful study of the tissues from a woman who died eight days subsequent to the heat application for two and a half hours showed it to be a fallacy. Directly beyond the cauterized zone were actively proliferating cancer cells. The application of heat so low as not to char the tissues is of no more value in hindering cell growth in the depth of the tissues than are high degrees of heat. The technic advocated by me has the advantage of being able to do the cauterizing in from twenty to thirty minutes, and I believe that the destruction of tissues is carried deeper, leaving only a shell of the cervico-uterine structures. The degree of heat employed by me is much higher than that advocated by Byrne. I keep the electrode at a cherry-red heat while it remains in contact with the tissue, and when a fairly thick layer of carbonized structure has been produced, more current is turned on to raise the heat of the dome electrode to a light red. The electrode must be taken off during the process of burning to determine how much tissue has been burnt out, and to burn off the layer of carbon accumulated on the electrode. It requires from one to two weeks for the carbonization eschar to be thrown off, and then there is a slight sanguineous oozing which may be controlled by the use of acetone, or a strip of styptic gauze may be packed into the cavity. But what is still better is to resort to the desiccation process by the slow heat method. The heat should not be used more than from twenty to thirty minutes, and no carbonization must be caused. One must be careful not to use too much pressure with the electrode, since, if the first treatment has been properly done, only a shell of cervico-uterine structure is left. Opening of the abdomen is not necessary for the second cauterization or rather desiccation. For additional after-treatment, radium should be used. Ligating the internal iliac arteries, as originally advised by Pryor, and oophorectomy as a preliminary step, are good procedures. Ligation of the arteries lessens the bleeding and the discharge in cases of inoperable carcinoma of the uterus.

DISCUSSION

DR. THOMAS S. CULLEN, Baltimore: In cases in which we have used heat and got rid of the sloughing area of the growth, we have been amazed to see the inoperable growth contract down until one could move it from side to side; this was not due to the marked diminution of the cancer, but in getting rid of the suppurating area, and there is not the same absorption in the broad ligament.

DR. J. WESLEY BOVÉE, Washington, D. C.: I have used galvanocauterization of the cervix for cancer for several years. I have devised a water cooled speculum for this purpose, but it is not so satisfactory as Percy's. Since 1898, in my radical operations, I have been ligating the internal iliacs with the ovarian vessels, and I have never operated in a case yet in which I did not have to contend vigorously with bleeding which came from the branches of the inferior hemorrhoidals. If the internal iliacs are cut off, the ovarian vessels are still left above, which connect with the uterine vessels, and a blood supply is obtained just as though the internal iliacs had not been touched.

DR. CHARLES H. MAYO, Rochester, Minn.: Our method for many years has been to do a hysterectomy in the early cases of cancer of the cervix, and in the late cases, with large fungating growths filling the upper vaginal vault, we have used heat. We have dealt with the local condition and have advised the use of acetone to stop hemorrhages. We have brought about palliation in seventy cases, and of this number we subjected twenty patients to hysterectomy later.

DR. J. SHELTON HORSLEY, Richmond, Va.: Vaccination might be included with the Percy cautery treatment in cases of cancer, and good temporary results obtained. A few cases have been reported in which there have been apparent cures of adenocarcinoma of the uterus after vaccine treatment.

DR. CHARLES R. ROBINS, Richmond, Va.: After I began the use of the Percy method I adopted the procedure of having a microscopic examination made of the tissue before and after the application of the cautery, and in cases which were not too far advanced, there was an absence of cancer cells in the uterus after the treatment.

DR. C. JEFF MILLER, New Orleans: I have used white heat, dull heat, and in a limited number of cases the Percy cautery, but for the last nineteen months I have been using radium in the advanced cases. I have treated twenty-six cases thus far with radium, and as a primary measure I believe radium is the best treatment for the advanced cases.

DR. W. P. CARR, Washington, D. C.: There is a great difference in cancer. Some cases are much more amenable to heat, radium and the Roentgen ray than others. I have had two cases of inoperable carcinoma of the uterus so

treated. One patient has remained well for four years; the other was not benefited.

Results of Operations for Exophthalmic Goiter

DR. E. STARR JUDD and DR. J. D. PEMBERTON, Rochester, Minn.: Because it is difficult to say when a case of exophthalmic goiter has been cured, cases in which operation was performed more than five years ago (1909) have been selected for this study. Our report embraces 121 unselected cases which we were able to trace. About 46 per cent. of the patients have remained entirely well and show no evidence of their old symptoms; about 23 per cent. were practically cured, although a slight trace of their old trouble persists or temporarily returns under severe nervous strains, etc.; between 4 and 5 per cent. were somewhat improved by operative interference, while about 5 per cent. reported that they had received no benefit. We ligated the superior thyroid vessels in some patients simply as a preliminary measure, and advised them to return in three weeks for thyroidectomy; in some instances so much improvement followed this procedure that they did not come back; we observed, however, that late recurrence of symptoms is more frequent among these patients than among those who have had resections of the thyroid. Frequently, in mild cases, ligation of the superior thyroid vessels is all that is necessary. Several patients, who had a resection of the gland, have since reported the birth of normal children; one woman has borne three normal children. Seven of the twenty-one patients who died were never able to leave the hospital, and were extremely toxic at the time of operation. The remaining fourteen patients lived an average of 14.1 months after operation, and death probably ensued from irreparable damage in the heart, liver and kidneys, due to continued intoxication. A more general education of the public, resulting in earlier interference in these cases, will greatly increase the percentage of cures.

Sarcomas in Unusual Situations

DR. HUBERT A. ROYSTER, Raleigh, N. C.: I have had six cases in which sarcomas were discovered in unusual locations: (1) a fibrosarcoma of the sheaths of the musculospiral and median nerves; (2) a rhabdomyosarcoma of the trapezius muscle; (3) a fibrosarcoma of the breast; (4) a single-celled sarcoma of the abdominal wall; (5) a lymphangiosarcoma of the coccygeal region, and (6) a myxosarcoma of the buttocks.

Subcutaneous Dermic Fistula in the Treatment of Ascites

DR. WALTER C. G. KIRCHNER, St. Louis: My cases were not especially well suited for a successful trial of the Oberst method, but in one of the four cases a satisfactory result was obtained, there being no return of the ascites. In this case the ascites resulted from alcoholic cirrhosis of the liver. The operations were readily performed under local anesthesia. In principle, the operation consists in the employment of a pedunculated portion of the skin from the abdomen, which is buried subcutaneously in such a manner that a flap projects into the abdominal cavity. Thus no substance foreign to the body is used in providing continuous drainage.

(To be continued)

NEW YORK ACADEMY OF MEDICINE

Meeting held Dec. 2, 1915

The President, DR. WALTER B. JAMES, in the Chair

Acidosis, with Special Reference to That Occurring in the Diseases of Childhood

DR. JOHN HOWLAND and DR. W. MCKIM MARRIOTT, Baltimore: It has been assumed that the acetone bodies are very abnormal and that their presence signifies an unusual complication in the course of disease, whereas, in many instances, we may liken the mere presence of acetonuria to fever, for it occurs in most of the infectious diseases of childhood with much the same regularity that fever does. In order to understand how acidosis may be brought about, it is necessary to consider the method by which the body maintains its equilibrium, in which there is a preponderance of bases over acids. To guard against the deleterious influence of acids formed or introduced into the body, a most efficient mechanism is available, which it is only necessary to consider from the standpoint of the blood since this serves to regulate the reaction for the entire body. Acids displace sodium bicarbonate from the blood and set carbon dioxid free. The excess of carbon dioxid is removed by the increased pulmonary ventilation, leaving a neutral salt to be removed by the kidneys, which remove acid phosphate and save the base. The third means of defense is afforded by the proteins, and is dependent on their amphoteric character. These three means act synchronously and reside in the blood itself. A further means of defense is the ability of the body to neutralize acids by the production of alkali in the form of ammonia. The means by which acidosis is recognized are, first, examination of the urine or the blood for the presence of abnormal acids, and, second, search for evidence of unusual activity of the body's defenses, determining the amount of ammonia excreted in the urine and its relation to the total nitrogen excretion. A high ammonia coefficient arouses the suspicion of acidosis, but unless this can be confirmed in some other way it should not be regarded as conclusive.

The methods which we have made use of are chiefly the determination of the carbon dioxid in the alveolar air, Sellard's test, the alkaline tolerance, and the determination of the hydrogen ion concentration of the serum and the oxygen combining power of the hemoglobin. We have considered acidosis in connection with recurrent vomiting and the diarrheal diseases more particularly since the conditions are more obscure and less understood than in diabetes, and have found that infants with severe diarrhea may die with no evidences of acidosis whatever. This was true of the majority. On the other hand, a number of infants with severe diarrhea developed evidence of acidosis, and the majority of these died. The clinical evidence of acidosis is hyperpnea. When there has been deep labored breathing without cyanosis, we have always been able to obtain other proof of acidosis. We believe that we have been the first to estimate the carbon dioxid tension in the alveolar air in infants, and we have been able to do this by a modification of the Plesch method, making it applicable for use with infants. The carbon dioxid tension of the alveolar air in normal infants varies between 35 and 42 mm., while in acidosis it is less than this, frequently between 15 and 25 mm., and with these infants the Sellards test is positive. There is also a great tolerance for alkali, so that relatively large amounts of sodium bicarbonate must be administered in order to change the reaction of the urine. In all the severe cases the reaction of the blood by the indicator method has shown a distinct shifting of the reaction in the direction of acidity.

Finally, evidence has been obtained of an alteration in the reaction of the blood by determining a great lowering of the combining power of the hemoglobin. There is one striking evidence of acidosis of infancy, and that is a diminution of the output of urine. Complete anuria is by no means unusual. This seems to offer an explanation of the accumulation of acids. The recognition of acidosis in older children is not difficult, the character of the respiration being usually sufficient to arrest one's attention, and one or two relatively simple laboratory tests will quickly determine the question. Older children react promptly and sometimes permanently to alkali therapy. It may be possible to stop the clinical and laboratory evidence of acidosis in infants, but they usually die. For this reason we should give infants with severe diarrhea from the beginning sodium bicarbonate in sufficient quantities to render the urine alkaline and to keep it so. The alkalies may be given by mouth, by rectum, subcutaneously or intravenously. The intravenous method is the method of choice when rapidity of action is desired, and with acidosis rapidity of action is always desirable. If facilities for intravenous injection are not at hand, the injection may be made subcutaneously. A 4 per cent. solution is employed for the intravenous and a 2 per cent. for subcutaneous use, the amount to be gaged to meet individual indications.

DISCUSSION

Dr. Donald D. Van Slyke: In acidosis accumulation of acids occurs from the failure of elimination to keep pace with the production of acids. It may result, as in diabetes, from an overwhelmingly rapid production of acids, which even a normal eliminating mechanism cannot keep up with; or it may, as in some cases of nephritis, result from failure of the eliminating mechanism to dispose of even the amount of acid formed in ordinary metabolism. Whatever the cause, the direct result is the lowering of the bicarbonate content of the body fluids, since retention of any of the metabolic acids other than carbonic acid results in the decomposition of an equivalent amount of bicarbonate in the fluids. Because of this fact, the determination of the bicarbonate content of the blood plasma is the most direct method for detecting the presence and severity of an acidosis. According to our experience and to the definition, the severity of acidosis is proportional to the fall below normal of the bicarbonate content of the plasma. The methods which are of real value in the detection of acidosis are either those for direct estimation of the bicarbonate content of the blood or the indirect estimation of its value. The direct determination of the plasma bicarbonate is simply made by acidifying a known volume of plasma, usually 1 c.c., and measuring the amount of carbon dioxid set free. In the normal adult we obtained carbon dioxid gas equal to from 55 to 75 volume per cent. of the plasma from which it is set free. When this falls to 30, acidosis is becoming dangerous. When it falls as low as 20 per cent., it seems nearly certain to be fatal. The alveolar carbon dioxid is an indirect measure of the carbon dioxid content of the plasma. In order to keep the hydrogen ion concentration of the plasma at its proper level, the respiratory center maintains the ratio between the amount of carbon dioxid in the form of free carbonic acid and bicarbonate, respectively, 1:20. Thus a normal plasma contains about 60 volume per cent. of bicarbonate carbon dioxid, and 3 volume per cent. of carbon dioxid dissolved as free carbonic acid. If acids accumulate sufficient to reduce the bicarbonate carbon dioxid to 30 per cent., respiration and circulation are so stimulated that the carbonic acid carbon dioxid is reduced to 1.5 per cent. The concentration of carbon dioxid gas in alveolar air is, in accordance with the solubility of carbon dioxid, about twice the concentration of the free carbonic acid in the blood with which the alveolar air is in equilibrium. Consequently, in normal individuals we have approximately 60 per cent. of bicarbonate carbon dioxid, in the plasma one twentieth or 3 per cent. of carbonic acid carbon dioxid, and in the alveolar air 6 volume per cent.

If the bicarbonate carbon dioxid is reduced one half, the respiratory mechanism reduces the carbonic acid carbon dioxid of the plasma also one half. For this reason the alveolar carbon dioxid is an indirect measure of the bicarbonate, and is useful as an accurate measure of the plasma bicarbonate. In normal individuals the alveolar carbon dioxid indicates within a limit of error of about one part in five the level of the plasma bicarbonate. The same limit of error holds good for diabetics, so that the alveolar carbon dioxid is of use in diagnosing diabetic acidosis when it is not desirable to draw blood for the direct determination. In certain other pathologic conditions, the alveolar carbon dioxid is no measure at all of the plasma bicarbonate or of acidosis, since its value is dependent on the normal function of the entire respiratory and circulatory apparatus. The alkaline tolerance method of estimating the bicarbonate carbon dioxid as used by Sellards, Henderson and Palmore is also an indirect measure of the plasma bicarbonate. The value of this test depends on the normal function of the kidneys. The determination of the hydrogen ion concentration of the blood even by the most accurate methods now available appears to be of less value as a warning of the presence of acidosis than any of the foregoing methods. Only after the bicarbonate concentration has fallen to so low a level that the respiratory apparatus can no longer keep the free carbonic acid down to its normal ratio of one twentieth the bicarbonate does the hydrogen ion concentration of the blood actually increase, and by this time the acidosis is very severe. In cases in which acidosis is caused by retarded elimination, the urine gives especially fallacious indications of the condition of acidosis. A patient may be sinking in acidosis steadily toward coma, with only normal excretion of acids in ordinary metabolism. What ever the cause, the direct result this excretion becomes increased and apparently as a result of the greater excretion. The significance of urinary analyses in giving evidence of abnormal metabolism should not be minimized, but they do not show whether or not acids are accumulating in the organism.

Graham Lusk: Two forms of organic acids are produced from the metabolism of the foodstuffs, the acetone bodies, represented by beta-hydroxybutyric acid, and lactic acid. Fats produce beta-hydroxybutyric acid, and carbohydrates produce lactic acid. Proteins produce both classes of acids, beta-hydroxybutyric acid from leucin or tyrosin, for example, and lactic acid from glucose, which may be formed from alanin, glutamic acid, etc. Dr. Howland spoke of the possibility of there being other organic acids than beta-hydroxybutyric acid and it may be interesting to suggest the possibility of the formation of lactic acid in the cases he has cited. Lactic acid has been found to be a constant constituent of the human blood after exercise (Fries) and after ascending high mountains (Bancroft). In dogs it appears in the blood after cramps produced by strychnin or after phosphorus poisoning. Spiro's observation in 1877 of the presence of lactic acid in the human urine after exercise has been confirmed by Ryffel, and by Hill. Underhill finds a large elimination of lactic acid in dogs in consequence of the activity which follows the administration of cocain. He also reports only a slight increase in the ammonia output, the amount of which is usually held to be the criterion of the intensity of acidosis. That lactic acid which is produced under all these conditions is derived from glucose follows from the fact that if one gives strychnin to a depancreatized diabetic dog, violent convulsions ensue without any production of lactic acid; and if one produces phlorizin glucosuria in a dog poisoned with phosphorus, lactic acid disappears from both blood and urine. In 1901, Munzer and Loewy administered sodium bicarbonate to dogs poisoned with phosphorus, and in consequence ammonia almost disappeared from the urine, indicating that the urea-forming function was normal. In many ways the children described by Dr. Howland recall the behavior of dogs poisoned with phosphorus. Possibly a search for lactic acid in this disease, as well as in other pathologic states involving acidosis when the acetone bodies are absent, may lead to new information on this subject.

Dr. L. Emmett Holt: I would like to emphasize what Dr. Howland said regarding the frequency of acetone in the urine in children, often without any clinical significance. A member of the house staff of the Babies' Hospital tabulated 200 consecutive urines of young children examined, and found that acetone was present in 30 per cent. of the cases. Of those suffering from lobar pneumonia, 70 per cent. showed acetonuria. In a series of cases studied at the Babies' Hospital, the ammonia nitrogen content of the urine, the carbon dioxid combining power of the blood and the acetone in the urine were determined. The ammonia nitrogen in the urine ran quite parallel with the carbon dioxid combining power of the blood, but there was no constant relation between these two and the acetone bodies in the urine. It is not uncommon to find acidosis in infants fed for a long time on high percentages of fats, which, it has been stated, and I think rightly, is due to loss of bases from the body in combination with fats in the stools.

Dr. Oscar M. Schloss: My experience with acidosis has been confined almost entirely to intestinal intoxication in young infants. In a small group of such cases I have determined the carbon dioxid content of the blood, the ammonia content of the urine and the tolerance to sodium bicarbonate. The results obtained are in accord with those of Dr. Howland and Dr. Marriott. In several cases the relatively slight importance of acetone and diacetic acid in the urine was

well shown, in that despite a great reduction of the carbon dioxid of the blood and increased tolerance to sodium bicarbonate, the urine contained no acetone or diacetic acid. Dr. Howland mentioned the uncertainty of the urinary ammonia as an index to the presence or degree of acidosis. This has been true in several of my cases, and is in accord with Sherman and Gettler, who found that when a subject is fed on a diet productive of high acidity, only a very small portion of the calculated acid appeared in the urine combined with ammonia, the greater portion being excreted as acid or acid salts. It is of interest in this connection that the ash of cow's milk has relatively slight basic properties. During the past summer the patients with intestinal intoxication with marked dyspnea admitted to the service of Dr. LaFetra at Bellevue Hospital were treated by the administration of large doses of sodium bicarbonate. In all, forty-two cases were treated, of which thirty-one terminated fatally. Four patients recovered completely, three left the hospital in an improved condition, and three were taken home unimproved. Of the thirty-one fatal cases, sixteen showed very marked improvement, so that recovery seemed probable. Death was usually due to a recurrence of the intoxication, which appeared suddenly and was of short duration. The alkali influences symptoms but not the underlying nutritional disorder.

DR. HERMAN SCHWARZ: Three types of acidosis have been seen and studied: (1) that secondary to a gastro-enteric condition; (2) that which is commonly called recurrent or periodical vomiting, and (3) that type following or in conjunction with infectious diseases, especially grip. The last form was usually secondary to an infection of the nasopharynx, and has a tendency to recur with other attacks of nasopharyngitis, and was thus mistaken for a true form of periodic vomiting. An interesting differential point was the polymorphonuclear leukocytosis which occurs in the infectious type, and a lymphocytosis which is invariably present in cases of cyclic or recurrent vomiting, either during the attack or in the interval. I have studied these three types of acidosis from the standpoint of blood sugar content, and on the way the blood sugar reacts on the administration of sugar in these children. Either the blood sugar may be normal, or when sugar is present in the urine, there may be a hyperglycemia. In these cases of acidosis the same rapid rise in the blood sugar content of the blood is noted immediately after the administration of sugar as is seen in normal children and adults, but after three or four hours or even more, the blood sugar may be much above what it was before the administration of the sugar, while in the normal individual it had dropped to normal by the end of two hours after the administration of sugar. This may be explained by the impairment of the kidney function, or, as shown by Epstein, the ability of the liver and muscles to build up glycogen is either impaired or destroyed. Interesting points observed in giving sugar to these patients were that they would retain this solution of glucose when they vomited everything else, and that the acetone and diacetic acid in the urine immediately disappeared for some hours. The giving of casein caused the acidosis to disappear in some of these cases.

DR. WILDER TILESTON, New Haven, Conn.: I want to call attention to the contrast between the effects of the same degree of acidosis as measured by the carbon dioxid tension of the alveolar air, under different circumstances. Thus the English observers, Kennaway, Pembrey and Poulton, found in diabetes a day or two before the onset of coma a sudden drop to 18 or 14 mm., and they consider values below 25 mm. as indicating a grave condition in this disease, and those below 20 mm. as foreshadowing imminent coma. On the other hand, Haldane, Henderson and Douglass at the top of Pike's Peak found that the carbon dioxid tension dropped to 18 or 20 mm., as the result of the high altitude, without any serious effects. In starvation, Benedict found a tension of 26 mm. It is evident that the gravity of the situation does not depend entirely on the degree of acidosis, but partly on the underlying cause. With reference to the relation of dyspnea to acidosis, Lewis and his co-workers have recently described a type of dyspnea without cyanosis, occurring in elderly people with cardiorenal lesions in which they found a high degree of acidosis. Nocturnal attacks of dyspnea and Cheyne-Stokes breathing were common. In young persons with uncomplicated cardiac insufficiency, although dyspnea was present, there was no acidosis. Evidently the state of the respiratory center is also of importance, for Peabody found a high degree of acidosis in the terminal stages of uremia without dyspnea. Benedict found marked acidosis without increase in the total ventilation in a man undergoing a prolonged fast, and in the men taken to Pike's Peak, the dyspnea disappeared after they became acclimatized, although the low tension of the alveolar carbon dioxid persisted even after descending to a lower level.

DR. ABRAHAM JACOBI: What Dr. Howland said in connection with overfeeding with fats as a cause of acetone and diarrhea is correct. Lactose used in any quantity always produces acetone. I do not give milk without carbohydrates. This is the third point that will prevent acidosis.

DR. W. MCKIM MARRIOTT, Baltimore: It is to be clearly understood that the acetone bodies beta-oxybutyric and aceto-acetic acid are in themselves not essentially toxic, and that they can prove harmful to the body only by removing the bases. The appearance of acetone bodies in the urine in large amounts is, of course, evidence that there has been a large production in the body; but this may have been completely compensated for by the defenses that the body possesses. A consideration of the blood gives us further information. By examining the blood for acetone bodies we are enabled to determine how much acid has been accumulated. If we find an accumulation of acids, it indicates that the kidneys are not excreting the acid as fast as it is being produced, and that a considerable portion of the base of the blood has been claimed by the abnormal acid and that therefore a considerable amount of alkali must be administered to supply the deficit. The result of the administration of the alkali in such cases is usually to increase the excretion of acetone bodies in the urine, and at the same time to diminish the concentration in the blood, this being coincident with improvement in the condition of the patient. Graham Lusk mentioned lactic acid as a possible cause of the acidosis of nutritional disturbances in children. Following his suggestion, we have been looking for excessive lactic acid production in these children; but with the methods available we are unable to state positively whether or not lactic acid enters in as a factor. I wish to make it very clear that acidosis in the diarrheal diseases of children is in itself not necessarily the cause of death. It is probably not the cause of death in most cases. In many cases, however, it is in itself of sufficiently grave character to bring about a fatal outcome. By curing the acidosis we do not cure the primary disease, and even if the acidosis has been completely removed, death may and usually does occur from the primary condition. I would also emphasize the importance of an acyanotic dyspnea, more correctly, hyperpnea, as the most easily recognized indication of acidosis. Probably the simplest laboratory test and one which gives valuable information by detecting even slight degrees of acidosis is the determination of carbon dioxid tension in the alveolar air. We have modified the method of determination so that the gas analysis apparatus may be dispensed with and the determination carried out in a very few minutes by a person without laboratory training. The hydrogen ion concentration of the blood or of the serum may be determined in a few minutes, and with less than a cubic centimeter of material by the indicator method. We have recently modified this method so that one can determine by it not only the actual hydrogen ion concentration but also the bicarbonate reserve of the blood and the carbon dioxid tension. This method further serves to differentiate between an acidosis due to carbon dioxid and to nonvolatile acids. No complicated apparatus is required. Sellards' test serves to indicate an acidosis of severe degree. The experimental administration of alkali serves both as a diagnostic and as a therapeutic measure.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

December, 1915, LXXII, No. 6, pp. 945-1116

1 *Treatment of Dysmenorrhea. F. B. Block, Philadelphia.
2 *Chorio-Epithelioma Following Long Period of Latency After Last Preceding Pregnancy. G. W. Outerbridge, Philadelphia.
3 Hydrops Universalis Fetus; Report of Case. E. A. Schumann, Philadelphia.
4 *Conservative Surgery of Chronic Intestinal Stasis. H. D. Meeker, New York.
5 Malignancy of Uterus. X. O. Werder, Pittsburgh.
6 Case of Leimyofibroma, Complicating Pregnancy. J. N. Bell, Detroit.
7 Atypical Chorio-Epithelioma. B. R. McClellan, Xenia, Ohio.
8 Fibroid Tumor Completely Obstructing Uterine Canal; Dead Fetus Long Retained without Infection. O. G. Pfaff, Indianapolis.
9 *Combined Operation for Interruption of Pregnancy and Sterilization. P. Findley, Omaha.
10 Hemorrhages in Children. H. B. Mills, Philadelphia.

1. **Treatment of Dysmenorrhea.**—Block's results in the treatment of a limited number of cases of dysmenorrhea treated with atropin have been most satisfactory. The method of administration which he employs is to direct the patient to take one hundredth grain of atropin sulphate two or three times a day for two days before the expected period and continue it after the flow appears until relieved of symptoms. In addition to this, the proper attention is paid to the lower intestinal tract and general personal hygiene. Block's plea is for the careful differentiation of the various types of dysmenorrhea and, having accomplished this, to give the patient the benefit of that method of treatment which has been shown to be of avail in the particular type from which she is suffering.

2. **Occurrence of Chorio-Epithelioma.**—A case is reported by Outerbridge of the occurrence in a woman, aged 43 years, of a vaginal tumor presenting the histologic structure of a malignant, chorio-epithelioma eight and a half years after the last demonstrable pregnancy. Outerbridge accounts for such a condition on the theory that, whereas in the vast majority of cases all fatal elements are destroyed by the maternal tissues within a comparatively short time after the termination of pregnancy, in exceptional instances fetal epithelia may remain dormant in the maternal organism, either at the placental site or elsewhere, for months and years, than to be by some unknown agency stimulated to malignant proliferation.

4. **Surgery of Chronic Intestinal Stasis.**—Unfortunately, Meeker says, there appears to be a growing tendency in the profession to associate the surgery of intestinal stasis with one of two procedures—either an ileocolostomy or a colectomy. The therapeutic possibilities of conservative plastic surgery has received but little attention. The principles of repair consist in relieving fixation of the gut, and covering over all denuded areas with peritoneum. Fixation bands are divided transversely and sutured longitudinally, the peritoneal margins being inverted. The band to be divided should be picked up by delicate forceps, the peritoneum nicked with blunt-pointed scissors and the cellular tissue and any underlying blood vessels pushed out of harm's way before the band is completely divided. Very fine round needles should be used, threaded with fine paraffined linen, the oil allowing the thread to be passed with the minimum amount of tissue trauma. Each case is a problem in itself.

9. Abstracted in THE JOURNAL, Oct. 2, 1915, p. 1214.

American Journal of Roentgenology, Detroit

November, 1915, II, Nos. 8, 9 and 10, pp. 793-868

11 Roentgen Diagnosis of Indurated Gastric Ulcer. L. G. Cole, New York.
12 Technic of Deep Roentgen Therapy. J. T. Case and L. L. Jones, Battle Creek.
13 Safe Interpretation of Roentgenograms of Gallbladder Region. E. W. Caldwell, New York.
14 Rôle of Roentgen Ray in Diagnosis of Obscurer Forms of Heart Disease. H. Wessler, New York.
15 Diagnosis of Stomach Conditions by Roentgen Ray. H. W. Van Allen, Springfield, Mass.
16 Accessory Sinus Angle Finder. F. M. Law, New York.

Archives of Diagnosis, New York

October, 1915, VIII, No. 4, pp. 301-402

17 *Significance of Thrombophlebitis in Thrombo-Angeitis Obliterans. L. Buerger, New York.
18 Diagnosis of Borderland Psychoses: Warning. L. H. Mettler, Chicago.
19 Diagnosis of Abnormalities of Myocardial Function. T. S. Hart, New York.
20 Hypo-Adrenia Miscalled Neurasthenia; Diagnosis and Prognosis. T. A. Williams, Washington, D. C.
21 *New Symptom of Ulcer at or About Duodenal Portion of Pylorus. H. Stern, New York.
22 Rare Forms of Pericarditis. G. Singer, Vienna Austria.
23 Diagnosis of Genito-Urinary Conditions in Women by Means of Roentgen Ray. G. S. Peterkin, Seattle, Wash.
24 Urinalysis and General Practitioner. R. Kilduffe, Jr., Chester, Pa.

17. **Thrombophlebitis.**—From the investigation on twenty-five exsected superficial veins, with a comparative study of the lesions in the deep vessels, Buerger concludes that an acute inflammatory stage is the initial manifestation of the pathology of the disease, thrombo-angeitis obliterans. Certain purulent foci are developed, strongly suggesting the presence of some specific toxin, or, more probably, some microbial agent. The destructive influence of these foci is evidenced in their action on the angioblasts, whose true purpose is thwarted, the result being the elaboration of a morphologic complex, distinctive and characteristic for the disease. Just as in tuberculosis, and doubtless in Hodgkin's disease, certain well-known structural products represent the specific reaction of the tissues to some organism, so here, too, the changes described are absolutely typical and diagnostic. Besides these changes, the production of aseptic, bland clot plays a part in the development of the occlusive tissue; while the infiltration of the media and adventitia make for the adhesive fibrosis in the deep vessels, and the distinctly palpable products of periphlebitis in the subcutaneous veins. The change of the acute into the healed connective stage is rapid, a type of occlusion resulting which has for a long time been regarded as due to an "endarteritis obliterans."

21. **Ulcer of Duodenum.**—The symptom described by Stern is both of an objective and subjective nature. It is subjective because it is a reaction to pyloro-epigastric discomfort or pain; it is objective because it is a visible evidence that the patient voluntarily or involuntarily assumes that posture which gives him most comfort. This posture constitutes the sign or symptom. The patient, trying to stretch out his epigastrium on account of the relief obtained thereby, often prefers standing to sitting; when in discomfort while resting on a chair he sits in a slanting position in such a manner that chest, abdomen and legs form a perfect incline. When experiencing discomfort while in bed, the patient tries to lie as straight as possible, often on the left, but never on the right side. The symptom or sign is of especial value in differential diagnosis. It is not present in gastric ulcer. In gallstone colic, the patient usually lies on his left side with legs drawn up. In appendiceal colic, as well as in the common affections of the cecum and the colon in general, the body of the patient, when sitting is bent over; when lying, his legs are more or less flexed.

Archives of Pediatrics, New York

November, 1915, XXXII, No. 11, pp. 801-880

25 *Gonococcus Vaginitis. M. E. Trist and J. A. Kolmer, Philadelphia.
26 *Proper Position of Tonsillectomy in Pediatrics. S. Blum, San Francisco.
27 *Tonsils Excretory Organs for Cervical Glands. S. Blum, San Francisco.
28 Six Cases of Hemorrhage in Newly-Born Babies. J. B. Manning, Seattle, Wash.
29 Physician and Child Labor. E. N. Clopper, New York.
30 Unusual Case of Epididymo-Orchitis in Infant. A. G. Mitchell, Philadelphia, and N. J. Quinn, Atlantic City, N. J.

25. **Gonococcus Vaginitis.**—The method of vaginal washing in the smear diagnosis of gonococcus vaginitis, Trist and

Kolmer believe, has its greatest value in the diagnosis of chronic cases and cases under treatment. In these cases the secretions are likely to be scanty, especially about the vulva and vaginal introitus, whereas considerable amounts may be present in the vaginal canal and about the cervix. In vaginal washing these secretions are secured and this explains the success of the method. Diagnosis by means of vaginal washing is, however, frequently difficult, and in all cases in which the discharge is free direct vaginal and cervical smears are to be preferred. Vaginal washings usually disclose a higher percentage of pus cells in vaginitis than simple smears, and these alone aid greatly in diagnosis. In subacute and chronic vulvovaginitis with scanty discharge vaginal washings will disclose gonococci in from 20 to 25 per cent. of cases when direct smears are negative; the percentage of positive findings is increased after irritation of the vaginal mucosa with silver nitrate after the method of Norris. The absence of gonococci in vaginal washings gives greater assurance of the absence of gonococcus infection and treatment guided by these examinations is likely to be more thorough, although greatly prolonged.

26. **Proper Position of Tonsillectomy in Pediatrics.**—Blum claims that tonsillectomy has become more than a therapeutic procedure; it has become a menace. He says it is performed not only in cases in which definite indications are present, but also for the most trifling reasons (witness reports of reputable physicians that they consider anorexia, faucial hyperemia, restless nights, indications for tonsillectomy), and sometimes for no reason. The present indiscriminate practice of tonsillectomy is unjustified because it is empiric; many of the alleged morbid symptoms attributed to diseased tonsils have not been proved to be caused by them; its results in Blum's observation have been unsatisfactory in many cases; it is dangerous. He says that tonsillectomy is contraindicated in hemophilia, status lymphaticus, diabetes, during epidemics of diphtheria and scarlet fever, during acute tonsillitis, during active cervical adenitis, at the time of adjacent local inflammatory affection. It should be the operation of choice in malignant disease of the tonsils. It may be indicated in recurrent peritonsillar abscess. It should not be performed in infants. It should only in exceptional cases be performed before the eighth year. Between the eighth and fourteenth years if positive evidence of serious local or systemic injury emanating from diseased tonsils can be adduced, and if the tonsillar affection does not yield to conservative treatment, enucleation is indicated.

27. **Tonsils Excretory Organs for Cervical Glands.**—In a series of experiments on guinea-pigs, Blum claims to have demonstrated that the tonsils are excretory organs for the cervical glands. Chemical substances which he has injected into the cervical glands of guinea-pigs were subsequently found in the tonsils of these animals. Furthermore, Blum has subsequently found the chemical injected into the glands of these animals in their oral cavities. He has also recovered from their oral secretions and has seen in their tonsils bacteria previously injected into the cervical glands of the animals.

Boston Medical and Surgical Journal

Dec. 23, 1915, CLXXIII, No. 26, pp. 941-978

31 Symmetrical Synovitis in Hereditary Syphilis; Report of Case. A. Post, Boston.
32 Some Modern Ideas About Anesthesia. F. L. Richardson, Boston.
33 Episiotomy. J. T. Williams, Boston.
34 Wanter—A Fad. R. T. Edes, Reading.
35 Mental Features of Congenital Syphilitics. J. H. Bazeley and H. M. Anderson, Boston.
36 Diagnostic Value of Lange's Gold Sol Test. H. C. Solomon, H. O. Koefod and E. S. Welles, Boston.
37 Salvarsan Apparatus. C. F. Denny, St. Paul, Minn.

Canadian Medical Association Journal, Toronto

November, 1915, V, No. 11, pp. 949-1044

38 Medical Ideals in Ancient World. J. P. McMurrich, Toronto.
39 Character and Treatment of Wounds in War. H. E. Munroe, Edinburgh.
40 Delivery by Hysterotomy; Report of Five Cases. H. E. Kendall, Halifax, N. S.
41 Dyspnea in Cardiorenal Disease. T. F. Cotton, Montreal.
42 Case of Acute Edema of Lungs. A. G. Nicholls, Amherst, N. S.
43 Case of Severe Pharyngitis in Association with Erysipelas. H. S. Muckleston, Montreal.

Colorado Medicine, Denver

November, 1915, XII, No. 11, pp. 315-352

44 Methods of Estimating Functional Efficiency of Liver. C. B. Van Zant, Denver.
45 Effects of High Altitude on Heart Affections. A. Zederbaum, Denver.
46 Triumphs of Preventive Medicine. J. W. Amesse, Denver.

Florida Medical Association Journal, Jacksonville

November, 1915, II, No. 5, pp. 129-160

47 Tonsillectomy. O. H. Johnson, Jacksonville.
48 Presenility of Eyes and Effects of Light on Eyes in Latitude. F. J. Walter, Daytona.
49 Progress of Intranasal Surgery. L. C. Ingram, DeLand.
50 Motor Nerves and Their Importance in Affections of Eye. F. P. Hoover, Jacksonville.
51 Tuberculosis; Disease of Double Origin. H. Byrd, Princeton.
52 Rare and Incomplete Forms of Epilepsy. W. P. Spratling, Welaka.

Illinois Medical Journal, Chicago

November, 1915, XXVIII, No. 5, pp. 321-400

53 Treatment of Tuberculous Disease of Spine. H. B. Thomas, Chicago.
54 Incipient Phthisis in Childhood. L. A. Juhnke, Chicago.
55 Treatment of Laryngeal Tuberculosis. E. E. Edmondson, Mt. Vernon.
56 Tuberculosis. J. C. R. Wettstein, Effingham.
57 Tuberculosis in Children. O. W. McMichael, Chicago.
58 Medical College Training in Tuberculosis. C. P. Emerson, Indianapolis.
59 Urochromogen Reaction in Pulmonary Tuberculosis. M. Biesenthal, Chicago.
60 Best Tuberculosis Prevention from Patient's Standpoint. S. M. Teague, Bloomingdale, Ind.
61 Tuberculosis Prevention from Physician's Standpoint. J. G. Lamont, Dunseith, N. D.
62 Early Diagnosis of Tuberculosis. A. J. Lanza, U. S. P. H. S.
63 Bacteriology of So-Called Intestinal Influenza. A. J. Hinkelmann, Galesburg.
64 Roentgenography of Skull. M. J. Hubeny, Chicago.
65 Etiology and Diagnosis of Brachial Plexus Lesions. G. W. Hall, Chicago.
66 Blood Pressure from Clinical Standpoint. G. Richter, St. Louis.
67 Interpretation of Blood Films. A. L. Mann, Elgin.
68 Constitutional Inferior Individual and Public. C. C. Atherton, Watertown.
69 Submerging Asphalt at Temperature of Three Hundred and Sixty F., with Recovery. O. F. Scott, Argo.

Indiana State Medical Association Journal, Fort Wayne

November, 1915, VIII, No. 11, pp. 499-536

70 Relation of Spleen to Certain Anemias. W. J. Mayo, Rochester, Minn.
71 Our Obligations as Specialists. W. N. Sharp, Indianapolis.
72 *Vesical Calculi in Children; Report of Case. H. O. Mertz, Laporte.
73 Interesting Kidney Case. J. Y. Welborn, Evansville.

72. Abstracted in THE JOURNAL, Nov. 20, 1915, p. 1846.

Iowa State Medical Society Journal, Des Moines

November, 1915, V, No. 10, pp. 467-506

74 Medical Progress. P. E. Gardner, New Hampton.
75 Fixation of Femur Fragments with Lane Plate When Using Bone Transplant After Excision. J. F. Clarke, Fairfield.
76 Recurrent Corneal Ulcers. L. Kinnier, Dubuque.
77 Hydrocephalus. H. M. McClanahan, Omaha.
78 Eye Symptoms and Their Value in Chronic Sinusitis. J. E. Reeder, Sioux City.
79 Treatment of Retention of Urine. J. Crawford, Cedar Rapids.
80 Indications for Cesarean Section. W. L. Allen, Davenport.

Journal of Biologic Chemistry, Baltimore

December, 1915, XXIII, No. 2, pp. 413-527

81 *Probable Nature of Substance Promoting Growth in Young Animals. C. Funk and A. B. Macallum, Toronto, Canada.
82 Calcium in Permeability and Irritability. J. Loeb, New York.
83 Salts Required for Development of Insects. J. Loeb, New York.
84 *Occurrence of Pituitary Extract and Epinephrin in Fetal Pituitary and Suprarenal Glands. C. P. McCord, Detroit.
85 *Resumption of Growth After Long Continued Failure to Grow. T. B. Osborne and L. B. Mendel, New Haven, Conn.
86 Determination of Urea in Urine by Urease Method. C. H. Fiske, Boston.
87 Preparation of Protein-Free Milk. H. H. Mitchell and R. A. Nelson, Urbana, Ill.

88 Time Required for Reduction of Oxyhemoglobin in Vivo. D. F. Harris and H. J. M. Creighton, Swarthmore, Pa.
89 *Nondestructibility of Uric Acid in Human Organism. M. S. Fine, New York.
90 Hydrogen Electrode Vessel. W. M. Clark, Washington, D. C.
91 Refractive Indices of Solutions of Certain Proteins. C. L. A. Schmidt, Berkeley, Calif.
92 Reduction of Oxyhemocyanin in Serum of Limulus Polyphemus L. C. L. Alsberg, Woods Hole, Mass.
93 Studies on Relative Digestibility and Utilization by Human Body of Lard and Hydrogenated Vegetable Oil. C. A. Smith, R. J. Miller and P. B. Hawk, Philadelphia.
94 *Chlorids in Diabetes After Pancreatectomy. J. E. Lebensohn, Chicago.

81. **Nature of Substance Promoting Growth in Young Animals.**—The new series of experiments reported by Funk and Macallum clearly show the absolute inability of either butter or purified butter fat to stimulate the growth of young rats. The addition of yeast stimulates, directly or indirectly, the appetite. The calorific determination of the food and feces shows in all cases a practically complete absorption of the food by the digestive tract, as the calorific value of the feces represents but from 2.5 to 5 per cent. of the calories taken in by the animals. Whether yeast alone without butter (replaced by lard) will produce normal growth in rats, and whether there are one or more components in yeasts which stimulate growth, is under investigation.

84. **Pituitary Extract and Epinephrin in Fetal Pituitary and Suprarenal Glands.**—Physiologic reactions characteristic of extracts of pituitary and suprarenal glands were obtained by McCord from bovine fetal glands during all developmental stages in which the macroscopic recognition of the glands is possible. For the pituitary gland, this period is from the eighth week to full term; for the suprarenals the period is from the sixth week to full term. The presence of the active principles of these glands at so early a developmental period suggests that the fetus in utero may be under the influence of its own internal secreting glands as well as the maternal glands.

85. **Resumption of Growth.**—Osborne and Mendel found that the growth impulse, or capacity to grow, can be retained and exercised at periods far beyond the age at which growth ordinarily ceases. In the case of experimental animals, albino rats in which increment of body weight ordinarily ceases before the age of 300 days, resumption and completion of growth were readily obtained at an age of more than 550 days. The period of growth may be greatly prolonged by inadequacies in the diet, so that growth becomes very slow without being completely inhibited. Though the time of reaching full size is thus greatly delayed, growth, as expressed by suitable body weight, can ultimately be completed even during the course of long-continued retardation.

89. **Uric Acid in Human Organism.**—Fine points out that, contrary to the findings of Schittenhelm and Wiener, uric acid can be demonstrated in considerable concentrations in human tissues. The method for determining uric acid in the tissues used by Fine was essentially that employed for the blood.

94. **Chlorids in Diabetes After Pancreatectomy.**—The diabetes was produced by Lebensohn in dogs either by total pancreatectomy in one step, or by removal of the pancreas in two stages after the method of Hedon. Not only was the chlorid excretion independent of diabetes and the degree of glucosuria, but it likewise seemed to bear no relation to the ammonia excretion. If the increased ammonia excretion in the diabetes after pancreatectomy of dogs be considered an index of acidosis, Lebensohn says, these negative findings may be taken as failing to confirm Fischer's theory chlorid retention. That ingestion of large amounts of NaCl does not change the amount of chlorid excreted in the feces indicates that in diabetes after pancreatectomy there is no change in the chlorid absorptive power of the intestine.

Journal of Cutaneous Diseases, New York

November, 1915, XXXIII, No. 11, pp. 731-786

95 Ringworm of Scalp in Chicago; Bacteriologic Study of One Hundred Cases. B. B. Beeson, Chicago.
96 Use of Mercury in Verruca Plana Juveniles. C. J. White, Boston.
97 Chronic Superficial Excoriation of Tongue, or Moeller's Glossitis; Report of Two Cases. F. G. Harris, Chicago.
98 Pellagra in New York and Its Vicinity; Report of Two Cases. F. Wise and M. F. Lautman, New York.

Kansas Medical Society Journal, Topeka

November, 1915, XV, No. 11, pp. 329-358

99 Early Recognition of Ruptured and Unruptured Ectopic Pregnancy. W. A. N. Dorland.
100 Toxemia of Pregnancy; Report of Two Cases. E. A. Reeves, Kansas City.
101 Some Practical and Economical Features Facing Medical Man. W. G. Norman, Cherryvale.
102 Epidemic Influenza in Children, with Special Reference to Gastro-Intestinal Complications. F. H. Smith, Goodland.
103 Sugar as Normal Constituent of Urine. C. F. Nelson, Kansas City.

Laryngoscope, St. Louis

November, 1915, XXV, No. 11, pp. 739-802

104 Operation for Draining Lachrymal Sac and Nasal Duct into Uniciform Fossa. H. P. Mosher, Boston.
105 Improved Technic in Application of Thiersch Graft in Radical Operation for Chronic Middle-Ear Suppuration. E. B. Dench, New York.
106 Spontaneous Cure of Six Cases of Unrecognized Sinus Thrombosis Accidentally Discovered During Operation. E. W. Day, Pittsburgh.
107 Bacillus of Perez as Etiologic Factor in Ozena. W. R. Murray and W. P. Larson, Minneapolis.
108 Labyrinthine Fistula; Operation; Recovery. J. L. Maybaum, New York.
109 Case of Abnormal Bone in Throat. W. O. LaMotte, Wilmington, Del.
110 New Suction Apparatus for Nose, Throat and Ear Operations. T. E. Carmody, Denver.
111 Tonsil Enucleator. W. D. Byrne, Chicago.

Medical Record, New York

Dec. 18, 1915, LXXXVIII, No. 25, pp. 1033-1078

112 Blood Pressure with Special Reference to Diastolic. L. F. Mackenzie, Newark, N. J.
113 *Stigmata of Tuberculosis. C. J. Holeman, U. S. Navy.
114 Transient Attacks of Manicdepressive Insanity. M. S. Gregory, New York.
115 Conservation Work as Applied to Life Insurance. F. C. Wells, New York.
116 Metastatic Carcinoma of Brain with Unusual Ocular Symptoms. S. H. Brown, Philadelphia.
117 Tuberculin as Aid in Surgical Tuberculosis. C. B. Burke, Atlantic, Iowa.
118 Indicanuria and Sulphates. J. C. Warbrick, Chicago.

113. **Stigmata of Tuberculosis.**—During several years of observation of the tuberculous, the fact that the majority of them exhibit those signs that are described as stigmata of degeneration impressed itself on Holeman. And of these stigmata, the most common, as well as the most striking and easily observed, are the various malformations of the pinna. Next to these, ill-formed palates and gross facial asymmetries abound. Search of the records of 189 cases revealed a note of such stigmata in 117 cases, or 61.9 per cent. Of 233 patients now in the hospital, 188, or 80 per cent., show stigmata of the kind mentioned. The following classical types of deformities of the pinna were observed: Darwin, 16; Wildermuth, 16; Stahl No. 1, 11; Blainville, 7; Morel, 5; Stahl No. 2, 2. Holeman concludes that the "stigmata of degeneration" of the psychiatrist may be accepted as "stigmata of susceptibility" by the phthisiologist. Should further evidence be demanded, the fact that the insane—the possessors of confirmed external stigmata—are of all individuals most preyed on by tuberculosis is confirmatory.

In view of this relation between mental disease, tuberculosis and external stigmata, is it not likely that there is some fundamental cause operating on the tissues at a time when ectoblastic (furnishing central nervous system and skin with its appendages) and entoblastic (furnishing bronchopulmonary system) derivatives were still directly subject to the same influences, that is prior to the primary differentiation of the layers? Of blastophthoric influences alcohol easily stands first. Among other blastophthoric influences syphilis lead and other cachexias are important, as are also tuberculosis and insanity themselves. Perhaps, too, psychic influences, concerning which few data are available, as fright, fear and anger on the part of the mother, might be included.

Modern Hospital, St. Louis

November, 1915, V, No. 5, pp. 311-386

119 New San Francisco Hospital. R. G. Brodrick, San Francisco.
120 Social Survey of Dispensary Patients in Philadelphia. B. Jobes and F. Hostetter, Philadelphia.
121 Treatment of Mental Disease in General Hospital. J. M. Mosher, Albany, N. Y.
122 Condensed Milks and Casein Preparations. J. P. Street, Cincinnati.
123 Architecture and Equipment of Barre City Hospital. E. F. Stevens, Boston.
124 Medical Libraries for Modern Hospitals. G. W. Myers, Boston.
125 Principles of Hospital Construction. M. J. Sturm, Chicago.
126 Purchase of Hospital Supplies. L. H. Burlingham, Boston.
127 Company Hospital. R. W. Corwin, Pueblo, Colo.
128 Books for Hospital Library. E. K. Jones, Waverly, Mass.

New York Medical Journal

Dec. 25, 1915, CII, No. 26, pp. 1265-1304

129 Cottage Hospital in Rural Communities. C. P. Noble, Philadelphia.
130 William Konrad Roentgen. I. S. Hirsch, New York.
131 Short History of Roentgen Rays. P. M. Brown, Boston.
132 Influence of Roentgen's Discovery on Medicine. L. Kast, New York.
133 Physics of Roentgen Radiation. J. S. Shearer, Ithaca.
134 Roentgen's Discovery. W. D. Coolidge, Schenectady.
135 Thyroid Disease. S. P. Beebe and J. W. Beveridge, New York.
136 Case of Pharyngeal Stenosis. H. Hallarman, New York.
137 Decayed Teeth and Cancer. A. M. Nodine, New York.

New York State Journal of Medicine

December, 1915, XV, No. 12, pp. 457-500

138 *What Stomach Symptoms Justify Surgical Intervention. M. B. Tinker, Ithaca.
139 *Pathologic Study of Syphilitic Aortitis and Its Serology. J. H. Larkin and I. J. Levy, New York.
140 Treatment of Vaginal Discharge. G. Chandler, Kingston.
141 Pancreatic Cysts; Report of Two Cases. G. B. Broad, Syracuse.
142 Foreign Bodies Left in Abdomen and in Surgical Wounds. M. D. Mann, Buffalo.
143 Mouth Infections as Related to Systemic Disease. S. M. White, Minneapolis.

138. Abstracted in THE JOURNAL, May 22, 1915, p. 1789.

139. **Study of Syphilitic Aortitis.**—Forty-two aortas were examined by Larkin and Levy and the serums of these cases tested serologically before death. Nineteen of these gave positive Wassermanns; twenty-three were negative. Of the nineteen positive cases, seventeen aortas gave microscopic evidence of syphilitic aortitis namely, 90 per cent. of their positive reaction (those serums fixing complement according to the method above described), have, at least, a definite pathologic explanation, based on changes in the aorta which are pathognomonic of syphilis. It is interesting to note that fifteen of the nineteen patients died as a result of a syphilitic process—about 80 per cent.; while eleven of the nineteen died from their syphilitic aortitis—about 60 per cent. The four patients dying from syphilis other than aortitis were one case of syphilitic cerebral endarteritis; one of meningomyelitis; one of tabes and one of ulcerating gumma of the larynx. Of four patients with positive Wassermanns dying of nonsyphilitic conditions, but showing perivascular infiltration, two died of carcinoma of the bronchus; one of chronic ulcerative tuberculosis and one of interstitial nephritis. The authors are of the opinion that it is highly probable that about 90 per cent. of individuals dying with a positive Wassermann, if the infection is not of recent origin, have, at least, from the histologic point of view, syphilitic aortitis. That about 60 per cent. of them die from their aortitis, giving clinical evidence of cardiac decomposition or rupture of an aneurysm, and that about 80 per cent. of these individuals die of syphilis. Since only one case of perivascular cellular infiltration gave a negative Wassermann in their series, it is fair to assume that 94 per cent. of individuals suffering from syphilitic aoritis would give a positive reaction in their serum.

Northwest Medicine, Seattle

November, 1915, VII, No. 11, pp. 339-372

144 Cerebellar Localization with Reference to Nystagmus and Vertigo as Localizing Signs. F. Epplen, Spokane.
145 Cesarean Section Operation of Choice. E. F. Tucker, Portland, Ore.
146 Present Status of Salvarsan and Allied Products in Treatment of Syphilis from Standpoint of General Practitioner. J. R. Brown, Tacoma.
147 Fracture of Jaw in Children and Importance of Preserving Six-Year Molars. J. B. McNerthney, Tacoma.
148 Mesenteric Cysts. L. W. Chilton, Canyon City, Ore.
149 Medical Organization in Idaho. J. N. Alley, Lapwai, Idaho.
150 Physician and Public. R. S. Joyce, Ogden, Utah.

Ohio State Medical Journal, Columbus

November, 1915, XI, No. 11, pp. 675-746

151 Psychic Factor in Deafness. P. D. Kerrison, New York.
152 Surgical Conditions of Great Omentum. C. A. Hamann, Cleveland.
153 *Recent Results in Roentgen Ray Treatment of Menorrhagia and Uterine Myoma. S. Lange, Cincinnati.
154 Ectopic Gestation. J. W. Fitch, Portsmouth.
155 Tumors of Lachrymal Gland; Report of Case with Operation. J. L. Washburn, Youngstown.

153. Abstracted in THE JOURNAL, Nov. 6, 1915, p. 1670.

South Carolina Medical Association Journal, Anderson

November, 1915, XI, No. 11, pp. 337-368

156 Simplified Anorectal Surgery and Anorectal Constipation (Stasis). S. G. Gant, New York.
157 Better Way of Putting Diaper on Baby. S. A. Visanska, Atlanta, Ga.
158 Diseased Tonsil Factor in Production of Systemic Diseases. L. O. Mauldin, Greenville.
159 Etiology and Symptoms of Pellagra. J. S. Fouche, Ninety-Six.
160 Skin Diseases of Childhood. I. Schayer, Columbia.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

November, 1915, XXIII, No. 11, pp. 309-344

161 Early Pathologic Changes and Their Relationship to Clinical Symptoms and Physical Signs in Pulmonary Tuberculosis. F. M. Pottenger, Monrovia, Calif.
162 Surgical Treatment of Chronic Gonorrhea. C. W. Tedrowe, Elk City.

Tennessee State Medical Association Journal, Nashville

November, 1915, VIII, No. 7, pp. 295-337

163 Chronic Ulcer of Leg. W. S. Farmer, Cookeville.
164 Classification of Irregularities of Heart Beat. L. Smith, Nashville.
165 Egg Membrane Substitute for Bone Grafts, et al., in Traumatic Defects of Skull. B. B. Cates, Knoxville.
166 Sporotrichosis; Report of Case. H. F. Friedman, Nashville.
167 Pityriasis Rosea. J. H. King, Nashville.
168 Autogenous Serum in Certain Diseases of Skin. J. M. King, Nashville.
169 Most Used and Abused Muscle of Human Body. A. C. Lewis, Memphis.
170 Trachoma Public Health Problem. F. J. O'Connor, Jackson.
171 Bichlorid Poisoning from Local Absorption. H. P. Larimore, Chattanooga.
172 Use and Abuse of Vaccines. H. Spitz, Nashville.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Dec. 4, 1915, II, No. 2866, pp. 801-844

1 Gas Poisoning. L. Hill.
2 Treatment of Gunshot Wounds of Abdomen. A. W. Mayo-Robson.
3 Field Ambulance Work at Anzac. C. M. Begg.
4 Recruit's Heart. J. Mackenzie.
5 *Supposed Soluble Toxin, Produced in Artificial Culture by Bacillus of Malignant Edema. G. Barger and H. H. Dale.
6 *Antiseptic Action of Hypochlorites. H. D. Dakin.
7 *Splint for Compound Fractures of Arm. G. M. Giles.
8 *An Adjustable and Standardized Splint for Treatment of Fractures. W. B. Hayes.
9 Electrical Treatment of Disabilities Due to Wounds. J. J. Grace.
10 Typhus in Serbia. B. W. Howell.
11 *Case of Leprosy Diagnosed by Roentgen Rays. A. Neve.
12 Spinal Injuries of Warfare. G. Holmes.

5. **Soluble Toxin Produced in Artificial Culture of Malignant Edema.**—The material used by Barger and Dale was obtained by growing the organism for five to six days at 37 C. on minced ox heart, previously sterilized in the autoclave. The culture was started in hydrogen and provision made for the escape of gases, which the culture soon produced in abundance, by a tube leading from the cultural jar into a trap filled with sulphuric acid. The semifluid, evil-smelling product was filtered first through paper-pulp, and then through a Berkefeld candle. A nearly clear brown filtrate was obtained. This filtrate produced the acute intoxication described by Besson when injected into guinea-

pigs, the fatal dose for an animal weighing about 300 gm. varying from 3 to 5 c.c. with different preparations.

6. **Antiseptic Action of Hypochlorites.**—Dakin claims that this "new antiseptic" was discovered in 1788 by the French chemist, Berthollet. He obtained a liquid with bleaching and disinfecting properties by the action of chlorin on aqueous alkalis. The composition of the mixture was obscure, but Berthollet presumed that additive compounds were formed between the halogen and alkali—for example, Na_2OCl_2. Berzelius in 1808 expressed the view that the product formed was a mixture of a salt of an unknown acid or chlorin with sodium chlorid. The discovery of this acid—hypochlorous acid—in 1834 by Balard definitely settled the composition of Berthollet's fluid as a mixture of sodium chlorid and sodium hypochlorite. Four years after Berthollet's discovery in 1792 the corresponding potassium salts were made commercially by Percy at the Javel works near Paris by passing chlorium into crude potashes. The product sold as eau de Javel, and its use as a disinfectant was advocated by Berthollet and by Guyton de Morveau. In 1820 Labarraque prepared a fluid similar to Berthollet's by the action of chlorin (1 mol.) on an aqueous solution of sodium carbonate (2 mols.). This preparation containing much free alkali became known as "Liqueur de Labarraque," or "Labarraque's disinfecting fluid." At a later date solutions of the hypochlorites of sodium and potassium were largely replaced by the more stable solid "chlorid of lime," a combination of calcium chlorid and calcium hypochlorite. It was with this substance that Semmelweis in 1846 succeeded in eradicating endemic puerperal fever from his clinic.

7. **Splint for Compound Fractures of Arm.**—Giles' splint is made from stout wire and scraps of tin. The essential point of the contrivance is a long marrow extension, which is brought up and bent over the acromion and fixed there in position directly over the head of the humerus by means of a pair of body straps.

8. **Splint for Treatment of Fractures.**—The splint which Hayes describes is practically the Thomas splint made completely adaptable. It is adjustable to any size limb and can be adapted to either the right or the left side. Being made from one pattern and in one size, it is therefore standardizable.

11. **Leprosy Diagnosed by Roentgen Rays.**—In Neve's case the disease was so atypical as to remain in doubt, even when examined by experts, until the Roentgen rays showed clearly the well marked osseous lesions of leprosy. The points that raised a suggestion of leprosy were (a) a little clubbing of the fingers, of which the terminal joints were not quite straight and symmetrical; (b) the toes appeared slightly shortened, and one of them was crooked. He was carefully examined for certain signs, which were all negative. A roentgenogram showed entire disappearance of the terminal phalanges of most of the toes.

Edinburgh Medical Journal

December, 1915, XV, No. 6, pp. 385-464

13 *Angina Pectoris. B. Bramwell.
14 French Country Practitioner of Old School. J. B. Adams.
15 Foreign Bodies Removed from Bronchus and Esophagus. J. S. Fraser.
16 Case of Failure of Union Between Vas Deferens and Testis. C. H. Whiteford.

13. **Angina Pectoris.**—Bramwell's view of the mode of production of the pain in angina pectoris is: 1. That in the ordinary typical cases in which the pain radiates down the left arm, the afferent nerves of the heart distributed to or over the left ventricle are irritated; that the exact manner in which this irritation is excited (whether localized spasm, increased tension in the cavity of the ventricle, etc.) is still undecided; that the exciting cause of the pain in this and indeed in all types of angina pectoris is usually increased blood pressure, whether actual or relative (walking uphill, against a wind, etc.); that over-distention of the stomach (walking after a full meal, flatulent distention, etc.) is a frequent exciting cause of the attacks; that in some cases emotional excitement is the exciting cause; that in other cases there is no apparent exciting cause. 2. That in the exceptional cases in which the pain is reflected to the right arm alone, the afferent nerves distributed to the aorta or passing over the aorta from the right side of the heart are irritated; that perhaps in some of these cases (though this seems to be less likely), the afferent nerves distributed to and over the right ventricle are directly irritated in the same way that the nerves distributed to or over the left ventricle are irritated in the ordinary cases included in group 1. This seems to be supported by Bramwell's clinical experience, which, he says, shows that in the cases included in this group (2) and in the next group (3), lesions of the aorta are much more frequently present than in the cases included in group 1. 3. That in some of the cases in which the pain is referred to both arms, the irritation first passes to the left side and then over to the right side of the spinal cord, and so first to the left and then to the right arm; in other cases the irritation first passes to the right side and then to the left side of the spinal cord, and so first to the right arm and then to the left arm.

An analysis of 178 cases of angina pectoris is made by Bramwell. In forty-eight, or 26.9 per cent., of the 178 cases no definite lesion was detected either in the heart or aorta; in twenty-eight cases, or 15.7 per cent., the heart's action was weak and the muscular wall of the heart apparently degenerated (fatty, fibroid, etc.); in twelve cases, or 6.7 per cent., the heart was enlarged without obvious valvular lesion; in forty-four cases, or 24.7 per cent., a valvular lesion was present; in one case, or 0.5 per cent., the pericardium was adherent, and in forty-five cases, or 25.2 per cent. the aorta was either dilated or aneurysmal.

Indian Medical Gazette, Calcutta

November, 1915, L, No. 11, pp. 401-440

17 Suprapubic Lithotomy in Treatment of Vesical Calculus. V. B. Bennett.
18 Irrigation After Extra-Capsular Extraction of Cataract. E. A. R. Newman.
19 Combined Vaccinations. A. Castellani.
20 Blackwater Fever; Report of Three Cases. C. E. P. Forsyth and E. T. Jameson.
21 Outbreaks of Epidemic Dropsy in Mofussil. S. L. Sircar.
22 Examination of Rectum and Anal Canal. P. C. Chapman.
23 Radical Treatment of Hydrocele without Excision of Sac. B. Madhab De.

Lancet, London

Dec. 4, 1915, II, No. 4814, pp. 1233-1282

24 Gunshot Wounds of Lungs; Report of Cases. W. H. White.
25 *Urea as Bactericide and Its Application in Treatment of Wounds. W. St. C. Symmers and T. S. Kirk.
26 Perforation of Gastric and Duodenal Ulcers. R. Warren.
27 Investigation on Nature of Ultra Microscopic Viruses. F. W. Twort.
28 Method of Drop Measuring Liquids and Suspensions. R. Donald.
29 Roentgenographic Method of Localizing and Measuring Depth of Foreign Bodies. F. J. Stansfield.
30 Spontaneous Rupture of Uterus with Unruptured Membranes and Accidental Hemorrhage. E. Macirone.
31 *Prolapse of Lung Through Deficiency in Anterior Portion of Diaphragm. J. N. Kilner.

25. **Urea as Bactericide in Wounds.**—According to Symmers and Kirk we have in urea a substance which in the dry state is permanently stable, which is practically nonpoisonous, which is highly diffusible, and which even in low concentration (3 per cent.) affects the growth of bacteria, is inhibitive to growth at about 8 to 10 per cent., and which is markedly bactericidal to nonsporing bacteria in the higher percentages. This bactericidal effect is active in the presence of blood and such like organic fluids. Moreover, urea is nonirritating to living tissues, the dry substance may be sprinkled over wounds to almost any extent without any injury to the parts. During the last four years the authors have been using urea clinically, at first in fresh 100 per cent. watery solution. The only cases in which this gave results of undoubted value were those of diphtheria carriers, in which it was used as a wash. In surgical cases they never got really good results until the urea was used in the solid form, and used very liberally; and the solution of it in the blood or serum in the wounds kept closely in contact with the tissues, either by closing the wound with continuous sutures or covering it with some protective material such as oil silk in order to

prevent drainage. Dry dressings on the top of the urea absorbed the solution and prevented its action on the tissues. It is entirely innocuous to the living animal tissues, even when used in large quantities in the solid forms. Symmers and Kirk have proved this by using it on Thiersch's epithelial skin grafts on healthy ulcers it has never caused any necrosis of the grafts.

In many cases of radical cure for inguinal hernia urea has been placed between the different layers of tissue without doing any damage thereto. In one case of radical cure for hernia in a man with a chronic staphylococcic blood infection the urea was sprinkled between the layers of tissue, and these layers were closed with continuous sutures so as to prevent all drainage. Since October 4, all the wounded soldiers under their care in the Ulster Volunteer Force Hospital have been treated with urea and it has been found that sloughing infected wounds dressed with urea once in twenty-four hours give better results than similar cases treated in any other way. In wounds treated with urea under protective tissue, there is absence of the venous congestion of the tissues that occurs in cases treated with ordinary wet dressings, continuous irrigation, or frequent baths. The circulation in the tissue is normal, and repair seems to be much more rapid than under the conditions produced by fomentations, etc. There is also no irritation of the skin. The drawbacks to its use are that in some cases it produces a considerable amount of pain, and urea absorbs moisture somewhat quickly and becomes caked. It can be carried for a long time in envelopes made of protective tissue, and put up in this way it could easily be adapted as a first-aid dressing for use on the firing line.

31. **Prolapse of Lung.**—Kilner's patient a male, about 30 years old, had suffered for two years from epigastric pain brought on by food. He often obtained relief by inducing vomiting. A swelling occasionally appeared above and to the right of the umbilicus. During examination pain was elicited by deep pressure at a point external to the right rectus abdominis muscle and about 2 inches below the costal margin. The uppermost segment of the right rectus was slightly rigid. An ill-defined thickening could be felt along the lower edge of the liver in the region of the ninth costal cartilage. Immediately after the examination has been concluded a tumor, measuring about 2 inches by 1½ inches, suddenly appeared at the point of intersection of the mid-Poupart and infracostal lines. The long axis was transverse. The swelling rapidly spread up to the middle line and showed irregular movements, which, passing from right to left, were puzzling and difficult to explain. On palpation the tumor was ill-defined, soft and boggy. It could not be reduced. There was no pain or tenderness. The percussion note was flat. After remaining visible for some minutes the swelling vanished.

The abdomen was opened by an incision to the right of the middle line. A bubble of gas, 2 or 3 c.c. in volume, appeared for a moment beneath the peritoneum just as this was incised. Nothing abnormal was found in the abdomen until the gas bubble appeared again from beneath the costal margin and was found to lie between the folds of the falciform ligament of the liver. It was followed immediately by a pyramidal mass of tissue, of which a portion 3 inches long and 3 inches broad at the base presented below the costal margin. This, which was evidently right lung, was dull red in color, firm and elastic to the touch, and easily reduced into the thorax through an oval opening in the diaphragm. The opening admitted three fingers and was bounded in front by the posterior surface of the lower part of the body of the sternum, and behind by a right arch. The xiphisternal and adjacent costal fibers of the diaphragm appeared to be deficient. A finger passed through the opening toward the left rested on the pericardium. No attempt could be made to close the opening in the diaphragm. The abdominal wound was sewn up, and it healed by first intention. A week after the operation the patient had a severe hemorrhage from the lungs. A second hemorrhage, nearly as profuse, occurred forty-eight hours later. Recovery from the effects of the bleeding was rapid. When he left the hospital a month later his general condition was satisfactory and there had been no recurrence of either tumor or pain.

Practitioner, London

December, 1915, XCV, No. 6, pp. 729-860

32 Pitfalls in Appendicitis. D. Power.
33 Recent Work in Connection with Anesthetics. J. Blumfeld.
34 Venereal Diseases as We See Them Today. J. E. R. McDonagh.
35 Prostatic Obstruction and Its Sequelae. J. S. Joly.
36 Hematuria. R. Thompson.
37 Recent Work in Dermatology — Bullous Diseases. J. M. H. Macleod.
38 Alopecia Areata. D. Freshwater.
39 Alopecia and Its Treatment. W. K. Sibley.
40 Mitral Stenosis and Its Peculiarities. A. Graham-Stewart.
41 Generalized Anasarca with Ascites, Complicating Exophthalmic Goiter. H. V. Mitchell.
42 *Treatment of Septic Wounds by Silver Nitrate. W. J. S. Ingram.

42. **Treatment of Septic Wounds.**—Removing the foreign material by fomentations, if necessary, Ingram applies silver nitrate over the bed of the ulcer and along any sinus, paying particular attention to thoroughness of application along the course of the sinus. For the next twenty-four hours, he puts on an ordinary dry dressing of biniodid gauze. After twenty-four hours, the bed of the ulcer is covered with a brownish, slimy slough; in some cases, the margin of the ulcer is inflamed and angry looking. For the next twenty-four hours, apply fomentations three times, and, as the result, the marginal inflammation has gone or largely subsided, the slough separates and the bed of the ulcer is covered with clean, healthy, granulation tissue. Healing then proceeds rapidly. Later, Ingram tried fomentations after the application of the silver nitrate, and found that, in most cases, the slough separated during the first twenty-four hours, the same healthy granulation tissue resulting. In deep wounds or ulcers, or in which hypergranulation tissue was abundant, two or three applications of silver nitrate was necessary, allowing an interval of three days between each application.

Archives de Médecine des Enfants, Paris

November, 1915, XVIII, No. 11, pp. 573-628

43 Vaccine Therapy in Forty-Six Cases of Typhoid in Children. E. Ortiz, M. Acuña and L. Belloc. To be continued.
44 Cerebrospinal Meningitis in Two Infants and One Young Woman; Prompt Benefit from Serotherapy. Condat.
45 Sarcoma of Prostate in Child under Five. B. de Saussine and others.

Bulletin de l'Académie de Médecine, Paris

Nov. 16, 1915, LXXIV, No. 46, pp. 529-554

46 Visual Disturbance in Diagnosis of Wounds of the Brain. (Les troubles visuels dus aux lésions des voies optiques intracérébrales dans les blessures de l'encephale par coup de feu.) P. Marie and C. Chatelin.
47 *Protection for Vaccination Pustule. (Pansement vaccinal protecteur. Pansement de nécessité et pansement de complaisance.) L. Camus.
48 Deafness from Explosion of Shell in Vicinity. (Surdités de guerre.) A. Castex.
49 Morphology of Typhoid and Paratyphoid Bacilli Cultivated in Human Cerebrospinal Fluid in Vitro. Daumézon.
50 *Toxicity of Extracts of the Prostate. (Note sur l'action désintoxicante de l'ablation des adénomes de la prostate, correspondant au pouvoir hypertoxique des extraits de cette glande.) P. Thaon.

Nov. 23, No. 47, pp. 555-593

51 Discussion on Wording of Circular Warning Against Venereal Diseases. Letulle and others.
52 Partial Tetanus. (Tétanos localisé.) C. Monod.
53 *Favorable Experiences from Utilization of Cytophylactic Action of Magnesium Chlorid in Treatment of Wounds. A. Pinard.
54 Tetanus Simulating Ileus Developing Ninety-Seven Days After the Wound. Brochet.
55 A Year's Experience with Antityphoid and Antiparatyphoid Vaccination. G. Maurange.
56 Devices to Correct Effects of Paralysis. (Note sur la prothèse fonctionnelle des membres.) Pierre-Robin.
57 The Oscillometer in Estimating Permeability of Arteries. A. Cawadias.

47. **Protection for Vaccination Pustule.**—Camus uses an oblong of adhesive plaster with the adhesive substance on both sides, covered with gauze. Three large round holes are cut in a row in the oblong, leaving only a narrow margin like a frame. The gauze is stripped from one side and this side is applied to the arm. Then the gauze is turned back

from the other side and the vaccination is done through the holes and the gauze veil replaced.

50. **Toxicity of the Prostate.**—Thaon reports the results of additional experimental research which confirm his previous announcements in regard to the extreme toxicity of extracts of the prostate. A maceration of 20 or 25 centigrams of bull prostate kills in three or four seconds a rabbit weighing 2,500 gm. He is convinced that part of the clinical picture seen with enlargement of the prostate is due to some direct toxic action from the prostate. He cites further Bazy's experience to the effect that the disturbances resulting from hypertrophy of the prostate may be alleviated more or less by providing drainage for the bladder, but that they never subside entirely until the prostate has been removed. The general health is liable to improve so remarkably after prostatectomy, in comparison to the previous condition, that there is little doubt that other factors besides the mechanical are involved.

53. **The Cytophylactic Dressing for Wounds.**—A few months ago Delbet called attention to the remarkable way in which phagocytosis was intensified by a 12.1 per thousand solution of anhydrous magnesium chlorid. Pinard here reports that he has been utilizing this property in treatment of the wounded in his service. He uses 18 gm. of crystallized magnesium chlorid to 1,000 gm. sterilized water, and irrigated the wounds with this twice a day at first and then once a day, covering afterward with a thin layer of absorbent cotton also moistened with the solution. The wounds healed far more rapidly than with any other treatment, as also phlegmons and other lesions. He declares that limbs and lives have been saved in his service by this treatment which he regards as great progress. (Delbet's announcement of what he called the cytophylactic action of magnesium chlorid was summarized in these columns, October 23, p. 1492.)

Lyon Chirurgical, Lyons

October, 1915, XII, No. 4, pp. 397-564. Military Surgery Number

58 *Injury of Retina or Choroid with Intact Eyeball. (Lésions des membranes profondes de l'œil par blessures de guerre avec intégrité du globe.) E. Rollet and L. Mangini.
59 Tardy Tetanus After Preventive Serotherapy; Four Cases. L. Bérard and A. Lumière.
60 *Sodium Persulphate in Treatment of Tetanus. A. Lumière.
61 Tardy Traumatic Tetanus. (Cas de tétanos retardé.) P. Vallette. (Cas de tétanos tardif à symptomatologie fruste.) R. Leriche.
62 Gas Gangrene, Gas Phlegmons and Gas Pleurisy. (Quelques observations d'infections gazeuses.) L. Tavernier.
63 Localization of Foreign Bodies. (Quelques opérations de repérage des corps étrangers par le compas de Hirtz.) L. Desgouttes and R. Dupont.
64 Decalcification and Wasting of Bone After Shattering Wound. (Atrophie osseuse calcaire consécutive aux fracas osseux par projectile de guerre.) L. Pech.
65 Treatment of Pseudarthrosis of Forearm Consecutive to Wound; Sixteen Cases. G. Nové-Josserand.
66 Resection of Shattered Hip Joint. (Technique pour la résection de la hanche en chirurgie de guerre.) L. Bérard.
67 *Treatment of Wounds of Bones and Joints. (Lésions osseuses et articulaires par armes à feu.) M. Gangolphe. (Technique pour la résection de la hanche en chirurgie de guerre.) L. Bérard. (Résection du genou d'emblée comme traitement de la fracture comminutive par balle de l'extrémité inférieure du fémur.) C. Viannay. (Sur la résection primitive dans les coups de feu articulaires avec fracture.) R. Leriche. (Des résections très étendues de l'humérus dans les éclatements de cet os au niveau de l'épaule.) R. Leriche.
68 *Obliteration of Lateral Sinus to Arrest Venous Hemorrhage in Wounds of the Neck. Lannois and Patel.
69 Spontaneous Evolution and Treatment of Wounds of the Chest. (Plaies de poitrine par projectiles de guerre.) L. Thévenot and F. Dumarest.
70 Immediate Operations for Abdominal Wounds. J. Murard.
71 *Emergency Transfusion of Blood by Aid of Quill. (Procédé simple et pratique de la transfusion du sang à l'aide d'une plume de poulet.) A. Rendu.

58. **Injury of the Deep Membranes of the Eye with Apparently Intact Eyeball.**—Rollet and Mangini have encountered ninety-six cases of this kind among the wounded in their charge. They give here twenty-four colored plates of the findings. They are those of detachment of the retina or rupture of the choroid or of hemorrhages in either, with their consequences. In general vision gradually improved, but in some cases it grew worse and the papilla atrophied. The eyeball is so elastic that it does not suffer as much as the retina and choroid from the contre-coup from a projectile in the vicinity.

60. **Sodium Persulphate in Treatment of Tetanus.**—Lumière has been studying for years the action of oxidizing agents on tetanus toxin. The results in vitro and also in the guinea-pig, dog, goat and ass have all demonstrated, he states, that the greatest destruction of the toxins is realized with the alkaline persulphates. His experiments on hundreds of animals all testified to the superior efficacy in this respect of sodium persulphate. It displayed always a favorable action, attenuating or suspending completely the spasmodic contractions. During the thirteen years before the war this drug was used at Lyons in eight clinical cases, and six of the patients recovered. When tetanus became so frequent during the first months of the war, thirty-three tetanus patients were given an intravenous injection of 20 c.c. of a neutral 5 per cent. solution of sodium persulphate once or twice a day as indicated. The spasms were considerably attenuated or entirely arrested, but the permanent contractions did not seem to be influenced. The trismus, the contracture of the abdominal wall and the stiffness of the neck persisted, but the patients had no further convulsions and lay quiet and tranquil. Even this is a great gain. Forty-one cases are tabulated; eight did not receive the sodium persulphate; four died of their wounds when the tetanus seemed under control; sixteen recovered, and thirteen died. The tables show that the incubation period in the cases of recovery ranged from nine to twenty-seven days; in the fatal cases from five to thirteen days, omitting the cases of flaring up of the infection after an operation. A number of cases of tardy tetanus developing after an operation suggest the necessity for repeating the preventive dose of antitetanus serum as a preliminary to further surgical intervention.

67. **Wounds of Bones and Joints.**—Gangolphe remarks that a statue at Lyons does honor to the memory of one of its surgeons, A. Bonnet, for having introduced the practice of immobilization into the treatment of arthritis. "The bronze still stands, but what he taught has been forgotten." . . . "In the last few years eight out of every ten cases of joint disease that have reached the hospital, had had months of inunctions, and other local applications, heliotherapy, etc., but without immobilization—" the one thing needed.

Wounded joints in war require the same thing, a good plaster cast; a plaster trough obviates any constriction. The advantage from immobilization surpasses that even from asepsis, he declares. In the joint lesions of peace, drainage is merely the complement of operative measures, but in war the operation is usually to provide drainage. For the shoulder, elbow, wrist and thigh, resection is "the highest expression of drainage," but this is not the case with the knee. He emphasizes the vast difference between wounded joints and diseased joints. Only one thing unites them from the therapeutic point of view, namely, the benefit which both derive from immobilization. The article discusses wounds of the bones in general and is illustrated.

68. **Obliteration of the Lateral Sinus to Arrest Hemorrhage After Wounds of the Neck or Preliminary to Operations.**—Lannois and Patel describe the modes of access to the lateral sinus, through or back of the mastoid process, and means to obliterate the sinus by tamponing with gauze wicks. The wall is easily compressed against the solid background. In some cases the sinus was first punctured to ensure a little clotting. The anatomy and physiology of the region permit this obliteration, and the results in the twelve cases reported were most gratifying. The procedure was applied six times on the right side and six on the left. There were no by-effects except, in one case, transient swelling of the superficial veins in the brow. The twelve cases are described in detail and the method commended as harmless and liable to prove very useful in removal of the parotid gland or other tumor in the neck. The circulation in the jugular vein is arrested almost entirely, enough for any operation required.

71. **Emergency Technic for Transfusion of Blood.**—Rendu was able to save by this means a patient almost moribund

from hemorrhage after injury of the thigh. A segment of the larger end of a quill was slipped on over the stump of the donor's artery, and the end of the stump was turned back over on the quill, like a cuff, and held with a ligature. The stump of the recipient's vein was then slipped over the quill-stiffened artery, and transfusion proceeded smoothly.

Presse Médicale, Paris

Nov. 18, 1915, XXIII, No. 56, pp. 457-464

72 The Histologic Mechanism of Tardy Rupture of Artery. G. Petit.
73 *The Effect of the War Environment on the Mind and the Healing of Wounds. (Les retentissements psycho-organiques de la vie de guerre et les soins à donner aux blessés.) Haury.
74 Study of Paratyphoid Fever; Fifty Cases. J. Lévy-Valensi.

Nov. 25, No. 58, pp. 473-480

75 Wounds of the Knee. (Traitement des plaies pénétrantes du genou.) X. Delore and Kocher.
76 Typhoid in the Vaccinated. A. Tournade.
77 Radiotherapy in Treatment of Certain Traumatic Lesions of the Nervous System. R. Cestan and P. Descomps.

Dec. 2, No. 59, pp. 481-488

78 *Pus in the Ventricles of the Brain in Meningitis. (La pyocéphalie cause d'insuccès dans le traitement sérothérapique de la méningite à méningocoques.) Chiray.
79 Improved Technic for Walking Extension Apparatus for Fractured Femur. Lamare.

73. **The Environment as Affecting Healing of Wounds.**—Haury declares that in the early treatment of the wounded too much attention is liable to be paid to the wound and too little to the man's mental state. The wounded are not merely so many pounds of anatomic tissues requiring surgical measures; the brain is a "trophic center," and when its balance has been upset by the stress of the campaign and the wound, the man may be unable to rally from even a comparatively simple operation. Give the brain time to steady itself, and the man may then be able to stand extensive operations and recover rapidly when this phase of transient blasting of the tissues and brain is past, and they have thrown off the psycho-organic reflection of the war environment.

78. **Pus in the Ventricles of the Brain.**—Chiray explains the failure of serotherapy in certain cases of meningococcus meningitis as due to accumulation of pus in the ventricles of the brain. The pus lies there even after the meningitis may have entirely subsided, and this pyocephalus, as he calls it, may lead to a fatal outcome when otherwise the patient would have recovered. The inflammation of the ependymal cells, the retention of the purulent fluid with resulting distention of the ventricle walls, and the consequent interference with the communication between the intracranial cavities, cooperate in inducing an unmistakable train of symptoms, usually after the meningitis symptoms have subsided. At first it seems as if the meningitis had flared up anew, but resumption of serum treatment is futile. The general depression and wasting of muscles are extreme, the emaciation surpassing that with almost any other condition. The skin is dry and scales off, and there is almost constant somnolency or partial coma, with incontinence of urine and feces. The tendon reflexes are attenuated or abolished, the pulse accelerated, and there may be vomiting. The temperature may be normal or of an intermittent febrile type (the brain ventricle type). The symptoms may keep up for from two to five months before the cachexia is fatal, but the whole syndrome could probably be arrested by puncture of the ventricle if done in time. In three of Chiray's forty cases of meningitis necropsy revealed this accumulation of pus in the ventricle, and the conditions showed that it might probably have been easily removed by trephining. He declares that this is not such a serious intervention as it seems, and it may save many otherwise doomed patients. Lumbar puncture in these cases of pyocephalus may reveal that the cerebrospinal fluid is typical of progressing convalescence from the meningitis, in contrast to the serious clinical picture. Or it may be difficult to obtain any fluid by lumbar puncture. If the fluid is still yellow after injection of serum, this shows that the latter is shut off from the spinal cavity by some obstruction. Another sign of the pyocephalus is the marked contrast between the spinal and the cerebral fluid, when the two can be compared.

Revue de Gynécologie et de Chir. Abdom., Paris

July, 1914, XXIII, No. 1, pp. 1-96. Last indexed Sept. 12, 1914, p. 975

80 *Ovarian Pregnancy. L. Sencert and M. Aron.
81 Ovarian Dermoid Cyst Taken from Woman of Sixty-Four. Latteux and Thevenard.
82 *Twenty-Five Years' Operative Treatment of Uterine Cancer. C. Waegeli.
83 Chorio-Epithelioma Consecutive to Hydatidiform Mole. Gruget and X. Bender.
84 Pyelonephritis of Appendicular Origin. R. Proust.
85 Colloid Epithelioma of the Transverse Colon; No Recurrence in Four Years to Date. R. Proust and X. Bender.

80. **Ovarian Pregnancy.**—The development of the placenta and its persistence for two years after the death of the embryo in the case reported illustrate the independence between the development of the placenta and that of the fetus. The young woman had long pleaded for operative relief from pains in the pelvis and amenorrhea, but as nothing could be found to explain them the operation was deferred from time to time until a tumor became evident in the region of the ovary. The uterus was found atrophied to a considerable extent. The patient had an abortion nearly a year after the ovarian tumor had been removed.

82. **Operative Treatment of Uterine Cancer.**—Waegeli reviews the 358 cases of cancer that have been received during the last twenty-five years in the gynecologic clinic connected with the University of Geneva, Switzerland. Only 28.17 per cent. were found operable cases. The experiences related demonstrate anew that after removal of a cancer of the cervix, when the patient has once weathered the dangerous cape of the third year, she can be regarded as almost certainly definitely cured. The limits of operability have been constantly enlarging, but still the proportion of operable cases is lower than in Germany. This he ascribes to the energetic propaganda which has been carried on in Germany in favor of early recognition and treatment of uterine cancer. Steps in this line have been taken in Switzerland, but the campaign for education of the public has not been waged so vigorously as in Germany.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Nov. 13, 1915, XLV, No. 46, pp. 1441-1472

86 *Lessons from the War in Regard to Organization of the Army Medical Department. (Lehren des Weltkrieges für unser Armeesanitätswesen.) Hauser.
87 Ophthalmologic Notes from History. T. v. Speyr.

86. **Lessons from the War.**—Hauser has made a special study on the spot of the organization of the medical department of both the German and French armies, and summarizes here certain lessons drawn from what he has seen. He says that surgical measures close to the firing line are growing constantly more radical as the war progresses, particularly for tangential wounds of the skull, for abdominal wounds, and wounds of the vertebrae and spinal cord. The reverse is the case, however, in the base hospitals. The German plan of a large medical staff for a whole division is not so convenient or useful, he thinks, as the Swiss and French organization of a separate, small medical staff for each infantry regiment. The French have further large corps of stretcher-bearers which are grouped by the divisions, and are distributed for service as occasion arises. The organization of the dressing stations and of the transportation force are thus kept entirely separate. He thinks that this grouping is less convenient—for Switzerland, at least—and that the less tendency to centralization the better.

Hauser has been impressed with the lack of preliminary training in hygiene among the medical forces of the army, and expatiates on the necessity for remedying this, saying that defective army hygiene avenges itself as much, if not more, than defective military surgery. The advice of trained geologists and engineering experts should also be available. He declares that military hygiene can be learned only from actual experience with the troop. When the sanitary officer appreciates his task aright he will always have plenty to do even when few of the men require treatment. Every troop must have enough sanitary officers to ensure the exact compliance with proper hygiene at all times.

The war has confirmed further the advantages of specialist centers and also of large rather than small, scattered hos-

pitals. Accommodations for the wounded are easily improvised in school buildings and factories with the aid of the equipment of the hotels in the region. The war has further shown that men with certain physical handicaps, even men past the age limit, are able to do excellent work, so that he urges the authorities not to reject any recruits but to train for military service all the possibly available men.

Antisepsis has been shown to be indispensable in military surgery; quite different from surgery in peace times. The experiences in the various armies with vaccination against typhoid have shown that it certainly has reduced the morbidity, and that the disease is much milder and leaves fewer after-effects. Antityphoid vaccination has not been introduced into the Swiss army as yet, hygienic prophylaxis having proved effectual.

Deutsche medizinische Wochenschrift, Berlin

Nov. 11, 1915, XLI, No. 46, pp. 1357-1384

88 Typhus Epidemic. (Beobachtungen bei einer Fleckfieberepidemie.) Otto. Commenced in No. 45.
89 *Exanthem and Recurrence with Epidemic Meningitis. H. Morgenstern.
90 Epidemic of Smallpox. E. Hesse.
91 *Tuberculin Does Not Cause Irruption of Tubercle Bacilli into the Blood. (Tuberkelbazillen im Blute. III.) C. Moewes.
92 Technic for Plaster Casts of Feet and Toes. (Der Fuss- und Zehenverband.) F. Schultze.
93 Wounds of the Head. (Zur Beurteilung der Kopfschüsse.) W. von Brunn.
94 Comparative Ages of Husband and Wife and the Number of Children. (Gegenseitiges Alter der Ehegatten und Kinderzahl.) F. Prinzing.
95 *Liquid Petrolatum Cleans Alcohol. A. Pohl.

89. **Recurrence of Epidemic Meningitis.** — Morgenstern describes a case of epidemic cerebrospinal meningitis accompanied by an eruption and hemorrhagic patches. The exanthem kept up for a week and the meningitis was of moderate severity. After an interval of five weeks the whole syndrome returned, but was less severe and subsided earlier. There was another case of recurrence among his thirty patients with epidemic meningitis, and here the recurrence was far more serious than the primary attack.

91. **Tubercle Bacilli Not Driven Into Blood by Tuberculin.**—Moewes examined repeatedly the blood of thirty tuberculous patients under tuberculin but found no evidence that the tubercle bacilli had been mobilized by the treatment. None were found in the blood of those who had been taking the tuberculin for some time and only twice after a provocative injection, at the height of the reaction or at necropsy several days later. The blood was tested for the bacilli by injection of animals. The findings were thus positive in 6.6 per cent. under tuberculin. In 40 other cases in which no tuberculin had been given, tubercle bacilli were found in the blood in 5 per cent. of the cases. These figures do not include 10 cases of miliary tuberculosis in which the bacilli were found in the blood in 50 per cent. Tests of 22 tuberculous guinea-pigs showed tubercle bacilli in the blood in 64 per cent. of the 14 not given tuberculin and in 68 per cent. of the 15 with tuberculin.

95. **Mechanical Cleansing of Alcohol with Liquid Petrolatum.**—A few drops of liquid petrolatum shaken up with the alcohol in a bottle will carry down with the petrolatum all the impurities in the alcohol as it settles to the bottom. Or a drop or two of the petrolatum can be rolled around in a shallow tray of alcohol and then lifted out. The petrolatum can be seen taking up the impurities, like an enormous phagocyte, as it is rolled around. The same method would probably prove effectual also in cleansing any other fluid lighter than the petrolatum.

Medizinische Klinik, Berlin

Oct. 24, 1915, XI, No. 43, pp. 1172-1198

96 *Acute Articular Rheumatism and Its Complications in Children. B. Bendix.
97 Influence of the War on the Provision Supply and the Public Health in Germany. (Einfluss des Kriegs auf Ernährung und Gesundheit des deutschen Volkes.) N. Zuntz. Concluded in No. 44.
98 Treatment of Wounds of Bones and Joints. (Schussfrakturen langer Röhrenknochen und Gelenkschüsse im Feld und in der Heimat.) W. Böcker.
99 Epidemic of Dysentery in Poland. (Ueber die Ruhrepidemie 1914-1915 auf Grund des Spitalmaterials.) M. Gieszczykiwicz.
100 Deep Electrotherapy—Diathermia—of Duodenal Ulcer. M. Rubens.

Oct. 31, No. 44, pp. 1199-1224

101 Enlargement of Muscles Subject to Cramps. (Ueber Muskelhypertrophien hyperkinetischen Ursprungs bei toxischer Polyneuritis.) H. Curschmann.
102 *Experimental Research on Infectious Jaundice. (Die sogen. Weilsche Krankheit—ansteckende Gelbsucht.) Uhlenhuth and Fromme.
103 *Scarcity of Milk and Children's Diet. (Milchknappheit und Kindernährung.) O. Heubner.
104 Military Discipline in Hospitals as Factor in Healing of Wounds in War. (Lazarettdisziplin als Heilfaktor.) W. Hellpach.
105 Apparatus for Extension with Fracture of the Femur and Injury of Spinal Cord. A. Partos.
106 Filariasis in Russian Prisoners of War. E. Rodenwaldt and M. Bockhorn.

96. **Acute Articular Rheumatism in Children.** — Bendix remarks that the clinical picture is the same in children as in adults, but that the heart is touched more frequently in children. Besides the endocardium and pericardium, other serous membranes may be affected also, especially the pleura and meninges. Chorea may precede the acute articular rheumatism by months or years, or may follow it. A rudimentary form of acute rheumatism is not uncommon and may pass unrecognized, or the slight and transient disturbances be regarded as "growing pains." The joints may not swell at all in this rudimentary type. Acute articular rheumatism is rare in infants, but when it occurs the symptoms usually are restricted to the heart. Otherwise unexplainable findings in the heart may be the only manifestation of the disease. The heart may be affected in children even in the apparently mildest forms of the disease. Children also are liable to have it in an extremely severe form, frequently recurring, and involving the various serous membranes, or the disease may assume a chronic course, affecting the large and small joints, including possibly the vertebrae. With complicating chorea, the heart is especially liable to be affected. Among other complications that have been observed are meningitis, bronchitis, pneumonia, nephritis, tonsillitis, and purpura near the affected joints. Besides the bacteria involved, an inherited predisposition, getting chilled, and a damp house are auxiliary factors in the development of polyarthritis. Measures for prophylaxis of the disease and to ward off recurrence are required with special urgency in families known to have a tendency to rheumatism. Bendix has found air baths, with dry rubbing, most effectual in hardening children, followed by tepid baths, swimming in a warmed tank and later swimming in a river. These hardening procedures may include finally sea bathing and winter sports.

During the acute attack the child must be kept in bed until fever, swelling and pain are gone; getting up too early may bring back the joint trouble anew. The affected joints are smeared with oil or ointment and placed on cotton or in a splint. He says that the temperature of the sick room should not be above 18 C. (64.4 F.). The diet during the febrile stage should be milk, vegetables, fruit, bouillon and gruels, with lemonade and mineral waters at will, resuming a mixed diet as the fever subsides. The salicylates should be given on the same principles as to adults. Their action is enhanced by a warm bath followed by wrapping the child up dry and warm. The drug is given three times a day until there is profuse perspiration. In the severer and the irregular forms the salicylates may fail, and they are of no aid in the heart complications. He has never witnessed any serious untoward effects from them in children, so that large doses can be given without apprehension. The chronic form requires potassium iodid and local or full electric baths. Hot sand, superheated air, mineral mud, mild massage and other local applications may also render good service. The heart affection requires the usual measures.

102. **Infectious Jaundice.**—Uhlenhuth and Fromme announce that this disease can be transmitted to animals and hence that there is a prospect of successful immunization against and treatment of infectious icterus. The blood of patients is infectious during the first week; animals could also be successfully inoculated with urine from patients. The virus was refound in guinea-pigs in the bile and organs as well as in the blood and urine. It was able to penetrate into the

body through the intact mucosa and also through scarified skin.

103. **Effect on Children's Development of Scarcity of Milk and Meat.**—Heubner discusses the actual requirements of children for milk, saying that ½ liter cow's milk is ample during the first three months and also after the second year. Between these periods, ⅘ liter should be the standard. For schoolchildren ⅓ liter is enough. He says in regard to meat, that the experiences at the Breslau vegetarian orphan asylum have been permanently favorable. The institution was endowed with the understanding that the children were to be brought up without meat. They get ⅕ liter milk every day and occasionally a little more, with one egg a few times during the week. The rest of the time only vegetable food. Dr. Steinitz has been in charge of the institution for years and reports that the children thrive satisfactorily. Heubner adds that the food supply in Germany during the war, for all ages, suffers from a scarcity of fats, and that housewives would do better to purchase fat rather than meat for their children when they have not means for both.

Münchener medizinische Wochenschrift, Munich

Nov. 6, 1915, LXII, No. 46, pp. 1561-1596

107 *Structure of Callus as Guide to Treatment. (Ueber die diagnostische und therapeutische Bedeutung der feineren Details der Frakturbilder.) H. Wachtel.
108 *Antitoxin Content of Serum in Tetanus. H. Wintz.
109 Improved Bile Culture Medium for Diphtheria Bacilli. (Ergebnisse der Diphtherieuntersuchung mittels des Galle-Serum-Nährbodens v. Drigalski und Bierast.) K. E. F. Schmitz.
110 Poisoning from Celluloid Lacquer in Making Air Craft. (Gewerbliche Vergiftungen durch Zelluloidlacke in der Flugzeugindustrie.) F. Koelsch.
111 *Hematuria Without Known Cause. O. Weber.
112 *Calcium Chlorid Prevents Night Sweats. (Chlornatrium und Chlorkalzium als Antihydrotika.) H. Peperhowe.
113 *Apparatus for Testing the Hearing. (Neuer Gehörmesser.) A. Stocker.
114 Further Experiences with Gas Phlegmons. Fessler.
115 Orientation Method of Locating Projectiles in Tissues. (Die operative Entfernung von Geschossen mittels einer neuen Lokalisationsmethode—Orientierungsmethode.) C. Kunz.
116 Iodin Fumes for Sterilization of Skin and Wounds. (Hautdesinfektion und Wundbehandlung mit Joddämpfen nach Jungengel.) A. Bulling.
117 Injury of Retina from Air Concussion. (Zur Kenntnis der Netzhautschädigung durch erhöhten Luftdruck.) A. H. Pagenstecher.
118 Treatment of Compound Fracture of the Leg. E. Bamberger.
119 Three-Day Fever; Thirty-Two Cases. (Eine eigenartige Epidemie.) J. Kapp.
120 Prothesis for Fractures and Amputations. (Eine neue, aus Linoleum hergestellte provisorische Prothese für die untere Extremität.) H. Neuhäuser. (Schultergelenksprothese bei Schlottergelenk mit grossem Humerusdefekt.) J. Lewy. (Ueber Suspensionsbehandlung komplizierter Verletzungen der oberen Extremität, mit Extensionsschiene.) W. Purrucker.

107. **Therapeutic Indications from the Structure of the Callus After Fractures.**—Wachtel shows how with roentgenoscopy we are able to tell exactly what processes are going on in the callus as a fracture heals, and when simple reduction is all that is needed. The shadow of the structure of the callus shows when there is post-traumatic osteomyelitis or osteomyelitic pseudarthrosis. Suppuration interferes with the healing process, and hence the importance of its early detection and draining.

108. **Production of Antitoxin in Tetanus.**—The experiences related by Wintz confirm that an antitoxin is generated during convalescence from tetanus, but it seems to be in such minute amounts that it offers no prospects for utilization in therapeutics.

111. **Hematuria of Unknown Cause.**—Weber sifts the literature on "essential hematuria," declaring that this term is applicable only when even with microscopic examination of the kidneys no cause for the hematuria can be discovered. He then describes a case which he prefers to entitle "hematuria from an unknown cause." This patient is a youth of 17 with a history of diphtheria at 3, measles at 5, and scarlet fever at 6; otherwise healthy except for the hematuria which came on suddenly at the age of 2 and has persisted uninterruptedly to date. Exercise seemed to benefit, and Weber now reports improvement amounting nearly to a cure after an eight months course of reclining, at a mountain resort, with an hour or two each day spent in walking. Calcium lactate (1 gm. three times a day) apparently aided in the benefit. No cause for the hematuria could be discovered.

112. **Calcium Chlorid Prevents Night Sweats.**—At least this has been Peperhowe's experience. He experimented with sodium chlorid and calcium chlorid, and found the latter most effectual. Patients who used to be dripping with sweat at the morning visit were found dry and cheerful under the influence of the calcium chlorid, and they now clamor for it. He theorizes to explain its action; one element is the tranquilizing effect on the nervous system, as we know that the night sweats are the result of disturbance of vasomotor control from the influence of the products of the bacteria. Other elements in the benefit are the tonic and astringent properties of the calcium salts. Be this as it may, no injurious by-effects were noted in any instance, while it displayed an unmistakable tonic influence, he reiterates, justifying its continued use.

113. **Water Drop Test for Hearing.**—As the water drops on the slanting metal saucer, the metal rings and this affords a means of testing the hearing with greater precision than with the whispering voice. The small vessel holding the water can be adjusted at various heights above the metal saucer, thus graduating the test. It discloses in an unmistakable, objective manner even the slightest impairment in the hearing.

Zeitschrift für Geburtshülfe und Gynäkologie, Stuttgart

August, 1915, LXXVII, No. 3, pp. 537-790

121 *Care of the Umbilicus. (Zur Nabelversorgung.) R. Müller.
122 Present Status of Criminal Abortion. (Ueber kriminelle Fruchtabtreibung. W. Benthin.
123 Fat Embolism After Ovariotomy; Recovery. J. Praeger.
124 The Scientific Life-Work of R. von Olshausen. G. Winter.
125 The Mortality from Puerperal Fever Since 1900. P. Buess.

121. **Care of the Umbilicus.**—This communication from the Maternity at Basel in charge of von Herff reports the results of thorough trials of different methods of managing the umbilicus. In the last three years, among the 5,000 children, there has been no mortality from infection of the umbilicus. This, Müller declares, is the largest "clean" series on record. In this series the main reliance was on cutting the cord short and using Peruvian balsam.

Zentralblatt für Chirurgie, Leipzig

Nov. 13, 1915, XLII, No. 46, pp. 817-832

126 Advantages of Ventral Decubitus in After-Treatment of Laminectomy. (Vorteile der Bauchlage in der Nachbehandlung der Laminektomie.) F. de Quervain.

Zentralblatt für Gynäkologie, Leipzig

Nov. 20, 1915, XXXIX, No. 47, pp. 827-842

127 Fatal Gangrene of Segment of Intestine Utilized for Artificial Vagina by Baldwin's Technic. H. Guggisberg.

Gazzetta degli Ospedali e delle Cliniche, Milan

Nov. 28, 1915, XXXVI, No. 84, pp. 1313-1328

128 The Italian Soldier's Ration. (L'alimentazione del nostro soldato in guerra.) A. Pugliese.

Policlinico, Rome

November, 1915, XXII, Medical Section, No. 11, pp. 481-528

129 *The Suprarenal Capsules and Lactation. (Capsule surrenali ed allattamento.) C. Verdozzi.
130 *Multiple Myelomas with Bence-Jones Albumosuria. (La malattia di Kahler-Bozzolo, con illustrazione di un nuovo caso.) A. Martiri. Commenced in No. 10.

129. **Suprarenal Capsules and Lactation.**—Verdozzi examined the capsules of virgin and gravid and lactating guinea-pigs. He found that the cortical substance of the suprarenals increased regularly in size and weight during lactation. This occurs so constantly, he says, that we are justified in accepting it as the general rule in mammals, and hence can assume that the cortex of the suprarenals represents an important factor in the development and general nutrition of the animal organism.

130. **Myelomatosis with Bence-Jones' Albumosuria.**—The case of multiple myelomas described was diagnosed first as intercostal neuralgia and then as sciatica, but the pains in

the chest finally suggested ectasia of the aorta and tabes. The pains were increased by movements; there was a slightly pulsating tumor at the base of the sternum and roentgenoscopy disclosed dilatation of the arch of the aorta, and the iris and tendon reflexes behaved abnormally. The progress of the case, however, especially the appearance of Bence Jones' albumosuria, confirmed the case as a typical example of the systematic affection of the bone marrow, of the nodular hyperplastic-neoplastic type, probably of toxic-infectious origin, with or without involvement of the rest of the blood-producing apparatus. The various other diseases that might be confused with it are analyzed and the differential points enumerated for each in turn.

Semana Medica, Buenos Aires

June 24, 1915, XXII, No. 25, pp. 775-802

131 *Effectual Vaccine Therapy of Ozena. (Vacunoterapia del ozena.) A. Quadri.
132 Lipomatous Myxosarcoma in the Mesentery. A. Villanueva.

Sept. 2, No. 35, pp. 267-298

133 *Stroganoff's Prophylactic Method of Treating Eclampsia. N. P. Costa.
134 Serotherapy of Bubonic Plague. III. J. Moreno.

131. **Vaccine Therapy of Ozena.**—Quadri relates favorable experiences in thirty-two cases of ozena in which vaccine treatment was systematically applied once a week. Seventeen of the patients improved with less than five injections, and only two failed to show benefit.

133. **Stroganoff's Method of Treating Eclampsia.**—Costa has applied Stroganoff's method alone in 21 cases of eclampsia and in 19 others supplemented by venesection. In 13 of the 40 cases it developed during the pregnancy; in 9 during labor, and in 6 after the child had been born. Twenty-nine of the women were already in coma when first seen and only 7 were fully conscious. Eleven died, but necropsy revealed such serious lesions in most of them that recovery would have been out of the question. In 2 of them pulmonary edema was the cause of death; acute anemia in a third. The minute details of 40 cases are tabulated for comparison, Costa's impressions being decidedly favorable for the Stroganoff method. It certainly reduces the convulsions, and these are the great danger in eclampsia. It also gives opportunity and time for needed obstetric measures. In short, he concludes, the efficacy and simplicity of the Stroganoff technic render it the best means at our command for management of eclampsia (The method was described in The Journal, July 3, 1909, p. 86).

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Oct. 16, 1915, II, No. 16, pp. 1815-1894

135 The Clinical Importance of the Wassermann Reaction in Neurology and Psychiatry. F. S. Meijers.
136 Scraping Center of Nail Thin in Treatment of Ingrowing Nail. (Een eenvoudig middel tegen unguis incarnatus.) E. C. Van Leersum.
137 Roentgenography in Detection of Subdural Hematoma. A. M. van de Graaf.

Oct. 23, No. 17, pp. 1895-1990

138 Favorable Experiences with Roentgenotherapy of Cancer; Fifty-Six Cases; Twelve Cures. G. F. Gaarenstroom.
139 Rhythm and Metabolism of the Heart Muscle. (Rhythmiek en metabolisme van de hartspier.) S. de Boer.
140 Advantages of Plastic Operation on the Conjunctiva to Ward Off Sympathetic Ophthalmia After Injuries. (Bindvliesplastiek bij doordringende verwondingen van het oog en de kans op sympathische oogontsteking.) A. Verwey.

Nordisches medizinisches Archiv, Stockholm

1915, XLVII, Surgical Section, No. 3. Last indexed May 22, p. 1803

141 *Treatment of Cleft Palate. (Zur Frage von der Behandlung angeb. Gaumendefekte.) S. Hybbinette.
142 *Operation for Primary Tumors of the Vertebrae; Ninth Case on Record. (Wirbelkörpertumoren.) E. Key.
143 Transpleural Resection of the Cardia and Esophagus. J. Borelius.
144 *Ovarian Tumors Obstructing Delivery. S. Lindqvist.
145 Tumor of the Brain Simulating Eclampsia. (Fall von Gehirntumor.) E. Alin.
146 *Plastic Operations on the Thorax for Pulmonary Tuberculosis. (Thorakoplastik bei Lungentuberkulose.) C. Löwenhjelm and G. Nyström.
147 *Necropsy Findings after Exclusion of Tuberculous Bladder. (Exclusio vesicae bei schwerer Blasentuberkulose.) E. Key and C. Sundberg.
148 Uterine Cancer Apparently Cured by Radium Exposures. N. V. Akerblom.

141. **Correction of Cleft Palate.**—Hybbinette applied Brophy's technic in one case, Langenbeck's in seven, and in eight others a combination of the latter and Lane's technic. He operated at two sittings with this latter method and found conditions better when the interval was ten or twelve days. Healing was by primary intention and with good anatomic results in all, but functional training in speaking is indispensable to obtain satisfactory results. The three technics are compared, with diagrams of each showing the various steps.

142. **Primary Tumors of Vertebrae.**—Key summarizes and compares eight operative cases with one from his own experience. Three of the patients, including his own, did not survive the operation. Two others succumbed to recurrence two or ten years later. Two others were known to be free from recurrence the tenth and eleventh months after the operation, and Israel's patient was permanently cured. The trouble was not recognized until too late in many instances. The tumor was an enchondroma in four of the nine cases. Metastasis of cancer in the spine generally proceeds from a primary tumor in the breast in women and in the prostate in men. Fraenkel called attention to the cloudlike spots in the peripheral portion of the Roentgen picture of enchondroma, but others have not found them so prominent. The paravertebral technic seems the most promising mode of access. This permits better radium treatment, which he regards as practically indispensable. Tumors originating in the vertebrae seem to grow very slowly and to be relatively benign, so that the outlook for a complete cure is good with early Roentgen diagnosis and postoperative radium treatment.

144. **Ovarian Tumors Preventing Delivery.**—Lindqvist tabulates the details of 116 cases he has found in the literature, 1897-1914, including Keyes', published in The Journal, 1909, lii, 463. Analysis of this material shows that attempts to conclude delivery past the tumor are dangerous and usually futile. The ovarian cyst ruptured, with fatal results, in 8 per cent. of the 183 cases reported by McKerron. Cesarean section supplemented by ovariotomy is the procedure Lindqvist advocates as a rule. In his case the woman was delivered by abdominal cesarean section and the dermoid cyst in the right ovary was removed. At her second pregnancy the uterus ruptured. His second patient was also delivered by cesarean section, the pelvis being completely filled up with an ovarian cyst.

146. **Operations on the Chest Wall for Pulmonary Tuberculosis.**—The indications for the technic and the results of plastic operations on the chest wall are discussed in this article which reports also four personal cases. The impression is decidedly favorable to this method for providing more favorable conditions for the natural healing of a tuberculous process in the lung. Improvement was pronounced in two of the cases described, a woman of 30 and a man. Ten ribs were resected in the latter case. The third patient was a man of 20 and no improvement was evident after resection of a total of 80 cm. of ribs except that the amount of sputum was somewhat reduced. This patient died about three months later and the necropsy findings are described. The fourth patient seemed to be improved at first; the temperature dropped to normal and expectoration was reduced but the woman had an extensive hemorrhage from the lung three months later. All were advanced cases and the thoracoplastics was the last resort.

147. **Exclusion of Tuberculous Bladder.**—In the first of the two cases reported the tuberculous kidney was removed and the patient was restored to clinical health by this and exclusion of the bladder. In the other case the kidney was not removed, and the patient has succumbed since to uremia. In both cases the opening into the ureter to exclude the bladder answered the purpose perfectly and the bandage held tight. No harm seemed to result from leaving the catheter projecting into the ureter for such a long time. There was no irritation such as is inevitable when the urine comes in contact with the skin at the mouth of the fistula.